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**Handbook
for the
Delivery of Care
to
Mothers and Children
in a
Community Development Block**



**Ministry of Health and Family Welfare
Government of India**

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HANDBOOK
for the
DELIVERY OF CARE TO
MOTHERS AND CHILDREN
in a
COMMUNITY DEVELOPMENT BLOCK

Designed for the use of Medical Officers, and to assist the
Training and Education of Undergraduate Medical Students and Interns

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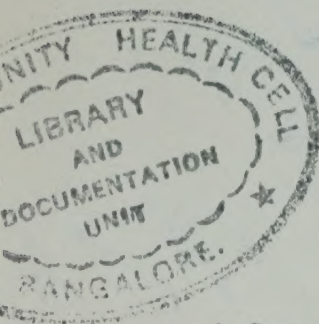
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Your work for Mothers and Children

This handbook is designed to help you in your daily work. With it you will be able to improve the health of mothers and children in your Community Block by organising your own work and that of the health team and by your contributions to Block Development.

But you must think of it as a tool you must learn to use with skill and care. It is arranged to give you practical answers to the questions you will ask yourself and the problems which will arise in your daily work. It will help you to understand the people you look after. It will help you to plan your work so that you will be able to use your time effectively.

The book is arranged in Chapters. Each answers a different question about your work as a medical officer or about the use of the book itself.

Acknowledgements

This volume has been compiled by an expert committee of medical educators to suit a course for Maternal and Child Welfare (MCH) and Family Planning developed under a WHO Project. The course was presented to teams of professors of obstetrics, pediatrics and preventive and social medicine from selected medical colleges, at the B.J. Medical College, Ahmedabad, and the Medical College, Trivandrum. Twenty thousand copies of the Handbook were distributed as a pre-test to medical colleges, different training centres for paramedical personnel, and all primary health centres.

In the course of 1981, the Handbook was evaluated by a WHO consultant to test its utility for PHC doctors, undergraduate medical students, interns, postgraduates, and trainers in MCH at various training centres, and the teaching staff of medical colleges. It was found that the volume proved useful to doctors working in primary health centres as a way of updating their knowledge and improving managerial skills.

These findings suggested that an economically produced edition of the Handbook, made available to the medical community at cost price, would be of immense value. A subsidy from National Book Trust has helped us achieve this object.

Our grateful thanks are due to the World Health Organization for their help in developing the Handbook. The core of the volume consists of the material contributed by a distinguished team of writers and editors. Significant contributions from the students and staff of various medical colleges, and professional colleagues, have been of immense help in remodelling the pre-test workshop material. Our sincere gratitude to all these anonymous contributors.

Our grateful thanks are also due to the publishers, Oxford University Press, for the customary efficiency with which they have produced this volume.

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CHAPTER 1

This book — How you use it

Section 1.1. INTRODUCTION

Your training and education as a physician is designed to help you to improve the health of people in the community. Books to help you must relate to the situations in which you work, the people you work with and the medicines and equipment you have available: your actions must fit both the situation and the problem.

This book relates to the whole Community Development Block and the people who live in it. You must see it as a tool to make your work efficient.

The main objective of the Community Development Block scheme is the improvement of agriculture. Improvement of health is intimately related to it. Better health will bring greater output and greater output better health — thus health, economy and agriculture all form a spiral pathway along which the community moves — upwards or downwards.

Although the book is a tool it is not automatic. It does not work alone; it must be used and its use must be understood. The more it is used the more skilful in its use does the user become. Skill is developed by interest and practice. From time to time the tool will need adjustment for the individual user. Needs change with local conditions and this book can relate only to the situation of the 'average' Community Block giving guidance on principles and teaching flexibility and adaptation in matters of detail (2.4).

How does a book act like a tool? By helping you to fulfil tasks by answering questions which arise as you think about your work and as you plan how a small team can have the maximum effect upon the health of a large number of mothers and children.

To act as clinician, teacher and manager you must have knowledge about mothers and children. This is given in Chapter 5. You must also be able to make decisions and to take action. This requires skills (techniques, Chapter 6) and equipment (Chapter 7). These three chapters form the centre of the book.

But you can only work effectively if you know as much as possible about the people you work amongst (Chapter 2) and you can organise a health team only if the job responsibilities of each member are clearly defined (Chapter 8) and they will work together with you (Chapters 3 and 4).

Chapter 9 will help you to ensure that the inservice training of the health team is maintained and educational responsibilities within the block are met.

Chapters 10, 11 and 12 all help with the use of the handbook: Chapter 10 tells you how and where to find further information; Chapter 11 explains the way technical terms have been used in the book; Chapter 12 is an index to help you make quick reference to any subject — the way to use it is explained at the beginning of the Chapter.

Frequent cross references are required and are given as a bracketted figure e.g. (4.1.3). The detailed list of contents at the beginning also helps you to find your way quickly about the handbook. You will very soon remember the numbers of the main chapters and sections.

Since descriptions cannot be set down simultaneously the sections must be written one after the other. But you should not think of the book as having a beginning or an end but rather as a cycle of chapters and sections each related to others by cross references — the complete answer to any question will therefore rarely be found in one place. You must move from section to section gathering information as you go. Care has been taken to avoid internal contradictions of fact or advice.

Each chapter and section heading and the numbered references in the text and the index all act as signposts directing you step by step to find your answers to the problems you meet or can foresee in your work, in your relationships with the people of your Block (2), with the other members of the health team (3 and 4); in planning, in organisation and management (6.4), in clinical work (5 and 6) and in teaching (6.3).

But it cannot do anything itself. You must supply the energy and the interest.

Although you will use it most often during planning and in preparation of your work it will also be useful in an emergency and you should not hesitate to consult it when other people are present. Particularly you should take it with you whenever you leave the PHC for work in villages.

You must also be prepared to improvise and to make apparatus and equipment locally.

Although the book is written to comply with the multipurpose worker scheme it can also be used if that scheme has not been introduced.

Section 1.2 LIMITATIONS OF USE

No tool can do everything and the skilled user is aware of the limitations of each tool he uses. This book is not a text book which tells you everything about a disease or a situation. If you use it properly it will tell you how to plan, how to meet common emergencies and to take immediate action for common events within a home, a Subcentre or a Primary Health Centre. It also tells you how to find and where to find further information provided you have the initiative to do so. It has necessarily been prepared with regard to the health workers, the drugs, equipment and facilities found in the 'average' Community Block. The details of such specifications while resting on the recommendations of the Government of India are nevertheless a matter for each State Government. Thus there is some variation in schedules of equipment and drugs from State to State. Throughout the country there is variation in language, customs, habits and occupations. These variations must always be remembered when the details present in any particular Block are found to differ from those described in the handbook. Yet the principles described can be applied everywhere.

In a Community Block Government provision must always be supplemented by local community effort and once the physician has won respect and influence he can stimulate and co-ordinate that local effort. The more the community helps itself the more involved and responsive its members become.



Section 1.3 WHAT IS MATERNAL AND CHILD CARE (MCH/FP)

Maternal and child care (MCH/FP) is the health service for mothers and children in the community. The service is provided by the primary health care team working with and through traditional healers, dais and members of the community. Its aims are to improve the health of women during their child-bearing years and of children through childhood by education in health knowledge and family spacing, by care of those who are ill and by the prevention of illness through improved nutrition and immunization. In child care priority is given to children under six years of age when health standards are poorest and mortality highest. Facilities are extended to school children and adolescents as conditions allow. This health service includes advice, knowledge and assistance in family spacing or planning and therapeutic, preventive and promotional personal health care.

Section 1.4 PRINCIPLES OF MCH/FP SERVICE CARE

1. Improvement of the health of mother and children with proper family spacing and family planning is the beginning of family health and wellbeing and of social and economic advance.
2. Effective services begin by understanding and co-operating with families in their own environments.
3. The service must be based on the most effective use of all the resources available within the Community Development Block.
4. Mothers and children must always be considered together; each affects the other and they are interdependent.
5. Personal care must always have three parts; curative, preventive and health promotional.
6. Services for mothers and children must be brought as near the home as possible and must build up from the village.
7. The doctor is always clinician, teacher and manager — sometimes one or the other, sometimes two or all three simultaneously.
8. Ultimate ideal though not yet attained in any country is to teach each adult person to care for his or her own health, to care for his and her children and to develop a sense of responsibility towards their community.

CHAPTER 2

The Community Development Block.

The people you look after and how they live.

Section 2.1 INTRODUCTION

Who are the people you care for and how do they live? You cannot be a good leader of a health team working to meet the needs of mothers and children unless you can answer these questions. You need to know the habits and customs of family life especially those concerned with pregnancy, child birth, child rearing, illness and death. These customs vary with religion, sect, caste, and in the different parts of the country. You must understand those which occur in your Community Block. These customs are also associated with a pattern of local folk medicine and healing practices which the people are used with and from which they have sought help for a very long time. These customs and practices can be understood and can continue to help the people together with your system of medicine. Your system and the Community Development Block organisation are both very new compared with village institutions. So from the very day you arrive you must begin to move about the area going to villages and into homes; at first with other members of the health team but later alone, meeting people and getting to know them.

In particular you will need to know the beliefs and practices of the community with regard to MCH/FP services. No other aspect of medical aid needs so much co-operation from the community as MCH. Assessment of felt needs is the first step in planning. When MCH becomes real and effective family planning and spacing will follow.

Neither a handbook nor a curriculum can provide for every variation of situation. Community Development Blocks vary from place to place. Staffing, supply and equipment is a little different from State to State but the information and guidance given in this handbook must relate to the conditions found in a community block and to make this possible the idea of an "average" Block having certain parameters has been used (2.4). The health team described follows the recommendations of the Committee on Multipurpose Health Workers (1973) (8).

Section 2.2 THE COMMUNITY DEVELOPMENT BLOCK

The Community Development Block Programme began in 1952. The objective is the integrated development of rural India through the social, cultural and economic aspects of community life. The programme depends upon the active participation and initiative of the people themselves. The highest priority is accorded to agriculture upon which the people depend: other important sectors are improvement of communications, health and sanitation, housing, education, rural employment, welfare of women and children and small scale industries.

Thus the work of the health team is an important contribution to improving the life of the people of the Block. Improvement in health is related to improvement in agricultural production and agricultural production to further improvement in health.

A Block has two active stages of organisation both of five years. In April 1973 (at the beginning of the Fourth Plan) there were 5,092 Blocks in the country of

which nearly 4,000 had passed through both active stages. From 1973 financial arrangements became the responsibility of the States having previously been in the hands of the Central Government. By 1977 some 5,400 PHC's were established in 5,245 Blocks.

Finance is provided by a nucleus budget supplemented by the resources of substantive development departments like agriculture, health and education. There are also mobilisation efforts by Panchayats and voluntary contributions by the people. The expenditure in 1973/74 was nearly 20 crores rupees.

The Department of Rural Development in the Ministry of Agriculture lays down policy relating to the Community Development Programme and formulates the pattern of expenditure: the execution of the programme is the responsibility of State Governments.

A joint consultative council was formed in 1971 to advise the Central Government on Community Development and Panchayati Raj.

In every State a Development Commissioner is in charge of the Community Development Programme. Zila Parishads are responsible for co-ordination and implementation at district level. Parishads consist of elected representatives of the people including the Presidents of the Block Panchayat Samitis, members of Parliament and members of Legislative Assemblies from the concerned districts.

The Panchayat Samiti is responsible for the programme in the Block — its members include elected Sarpanch, Presidents of village councils and co-opted persons representing women, scheduled castes and tribes.

The administrative officers are the Block Development Officer and eight extension officers each trained in his own field of expertise. They work under the Samiti. You as medical officer are required to attend the monthly meeting of the Block Development Officer and Panchayat Office (BDPO). You should make a point of doing this regularly and thus making good rapport and communication with that official. You should not send the Family Planning Extension Officer or the senior male health assistant in your place. You should be aware of the agricultural policy and characteristics in the Block and you should in turn make the Block Development Officer aware of the needs of the people and how health can be affected by the type and variety of crops grown. Personal contact and relationship is the most effective method of communication and the best way to reach a good understanding.

The Development Block administration has the following officers:

Block Development and Panchayat Officer (BDPO)	1
Assistant Panchayat Officer	1
Panchayat Secretaries	14—15
Gram Savikas	8
Agriculture Workers	15
Agriculture Inspectors	5
Overseer	1
Mukh Savika	1

This staff deals with house tax, street lights, compost pits, gobar gas plants, mahila mandals, small savings, family planning targets, roads, agricultural programme etc.

Voluntary organisations such as youth clubs, farmers forum and mahila mandals supplement the work of the Panchayat. At village level while the Panchayat is in overall control the Gram Sevak acts as a multipurpose extension agent with 10 villages in his charge.

Special programmes exist to bring particular help to certain areas and some might operate in your Block.

1. Composite Programme for Women and pre-school children. This scheme operates in rural areas not covered by the applied nutrition programme and family and child welfare projects. Launched in 1969–70 it stresses organised activities in nutrition, education and allied fields through the existing institutions of Mahila Mandals and Balwadis.
2. Applied Nutrition Programme. Centrally sponsored, this programme carried out in collaboration with UNICEF, FAO and WHO, is intended to educate the rural people towards improved nutrition. The programme aims particularly at securing needed nutritional supplements for children below five years and expectant and nursing mothers. To March 1974 the programme was in operation in 1,181 Blocks and in the Fifth Plan it has been extended to 700 new Blocks.
3. Supplementary Nutrition Programmes. Initially sponsored by the Government of India, they are now implemented by the State Governments. Under these programmes malnourished children, pregnant and nursing women in tribal villages, urban slums and drought prone areas receive nutrition supplements, school children get mid-day meals. The programmes emphasise health education and nutrition.
4. Integrated Child Development Services Scheme. This scheme has started in 33 Blocks throughout India since 1975. All children under six years and pregnant and nursing mothers receive nutrition and health care and nutrition supplements if malnourished. For three to six year olds non-formal education is provided through Anganwadis and functional literacy classes conducted for adults. Services are provided in the Anganwadi and on the doorsteps by Anganwadi workers, one for 1000 population.
5. Drought Prone Area Programme from 1971.
6. Crash Programme for Rural Unemployment 1971.

There are also village development programmes and special programmes for particular regions.

Panchayati Raj.

Introduced in 1959 is a three tier structure of local self government at village, Block and District levels. The three levels are bound together: Members are elected and there is special representation of various bodies e.g. women and co-operative bodies.

Where Panchayati Raj has been established the Panchayat Samiti is responsible for agricultural production, rural industries, medical relief, maternity and child welfare, village roads, tanks and wells, maintenance of sanitation and common grazing grounds. Sometimes they look after primary education, maintenance of village records and land revenue. The States are free to make changes in structure to suit local conditions thus there is some variation throughout the country.

The Panchayat, the co-operative and the school are the basic village institutions for carrying out democratic decentralisation. The elected Panchayat is in charge

of development. The co-operative functions in the economic sphere. The village school is also a Community Centre with educational, cultural and recreational activities.

The Panchayat Raj institutions have powers of taxation and can build up remunerative community assets.

Co-operative societies are increasing steadily and provide a mechanism for agricultural credit and other forms of economic assistance.

Section 2.3 WHAT YOU NEED TO KNOW ABOUT YOUR BLOCK

You do need to know the people of your own Block and as much about them as possible (2.1). You must collect and record data about the Community Block. Keep a book for this purpose.

1. First obtain a map and note roads and distribution of villages, waterways and crossing points, any natural grouping in relation to the PHC and Subcentres, the distance between villages, the time taken between villages and between villages and PHC and Subcentres on foot and using different methods of transport.
2. Notice and record character of land, food-production, storage, utilisation, customs regarding the preparation of food and try to assess the amount of food eaten by the different people within the family. This will give you data on which you can base realistic teaching of food utilisation and nutrition.
3. Collect and record customs and beliefs associated with contraception, menstruation, pregnancy, antenatal care, delivery and the care of children; regarding birthplace — and children, puberty and death — incoming brides, outgoing daughters-in-law.
4. Population. As base-line data you must know the numbers of people in each village. This may be obtainable from existing registers but these need checking and regular updating. Each village must have its register. If they do not exist they should be prepared methodically: a village census may be needed (6.4.2.2). Numbers can be extracted from family folders which must also be up-to-date. The register must contain the basic data of women between 14 years and menopause, fertility status, FP needs, number of children and their immunization status (7.5). Note employment and its variations and seasonal movement of population.
5. Study social relationships, within the family, between families, between Panchayat and villages, the local power structure, the village health committee, its constitution and how it functions. Identify the people you need to know.

Just by looking for these things, watching, noting and listening and recording you will learn very much indeed without asking questions. As you get to know people and are able to ask questions you will learn much more and begin to understand your people.

Section 2.4 THE 'AVERAGE' COMMUNITY BLOCK

The 'Average' Community Development Block used in the preparation of this book has the following characteristics:

1. A geographical area of 400–500 sq.km. with one PHC and 8 subcentres.
2. A population of 80–100,000 people in about 100 villages.
Each 10,000 people have approximately: 300–400 births per annum;
1,500 eligible couples; 1,300 children aged 1–5 years; 2,500 aged 5–15 years.
You must discover the actual proportions for your own area by survey.
3. Environmental conditions such that only a minority of the population has a protected water supply or sanitary latrines.
4. Socio-economic conditions such that a high proportion of mothers must earn wages; seasonal variations of employment and a low literacy rate, especially amongst women.
5. Vital and health statistics.
 - a) Infant mortality, about 130 per 1,000 live births or 40–50 infant deaths per 10,000 population per year.
 - b) Maternal mortality, 5–10 per 1,000 total births, 1–3 maternal deaths per 10,000 population per year.
 - c) High incidence of low birth weight, 25–30 per cent of live births weigh less than 2,500 grams.
 - d) Child mortality at ages 1–5 years, 30–35 per 1,000 in age group or 40–50 deaths per 10,000 population per year.
 - e) High pre-school morbidity: several illness episodes per child per year.
 - f) High incidence of severe malnutrition in children under six years of age; 20–25 per cent weigh less than 65 per cent of the accepted standard (5.2.5 and Table 5).
6. The health staff recommended by the Committee on Multipurpose Workers (3.3 and Table 1).
7. The buildings and equipment as provided by State schedules on Government recommendation together with current drug supply schedules. Provision varies from State to State.

Section 2.5 FUNCTIONS OF THE HEALTH TEAM

Functions	Members of Health team involved
1. Medical care	MO, M & F Health Assistants, M & F Health Workers
2. MCH & FP	FHW FH Assistant, MHW Male Health Assistant, MO
3. Control of Communicable diseases	MH Assistant, MHW, FH Assistant, FHW, MO
4. Environmental Sanitation	MH Assistant, MHW, FH Assistant, FHW, MO
5. Health Education	All at home and in O.P. Department
6. Nutrition	FH Assistant, FHW, MO and all members
7. School Health	FH Assistant, MH Assistant, FHW, MHW, MO
8. Vital Statistics	All – MO team leader

CHAPTER 3

How care is given to mothers and children.

The work of the Health Team.

Section 3.1 INTRODUCTION

This chapter concerns the health team, its composition and the responsibilities and relationships of its members: their roles and responsibilities as recommended by the Committee on the Multipurpose Worker (April 1973) and adopted by the Government of India are set out in Chapter 8.

The health team has no meaning as a mechanism for community welfare unless its members by working together reach the local population directly and also through the older traditional system of care. Co-operation with local indigenous practitioners is therefore of great importance.

The chapter is designed to enable you to organise the team and to undertake the responsibility of being its leader. To be a leader you must show an example of work and concern. It will not be easy because for much of your time you will be doing things which are new and which you will find very different from work in hospital. You must bring together knowledge (5) and skills (6) and you must always think of mother and child together. You must always remember that the care you give the child will reach him through his mother; it is she who must accept the advice or medicine, carry out the treatment, give the food you recommend, prepare it as you say it should be. She will do as you ask only if she trusts, and understands, you and other members of the health team. You must also remember that you might find yourself working with staff who are older than yourself and have had more practical and clinical experience in rural surroundings. You will be surprised at the wealth of knowledge they possess as a result of experience with the people amongst whom they work. No book or instruction can replace this experience.

For efficient team work each individual must understand his or her own role and function and also those of the other team members. All regular and routine tasks and as many patient/health worker meetings as possible will occur near the patient's home. Many health problems are simple for a trained person, but for your care to be effective you must not only know what to do and how to do it but must be able to get the mother or patient to accept advice and carry out treatment. There are so many minor complaints that you cannot deal with them all yourself: you must attend to patients more seriously ill and have time for the teaching and management required to make the health team effective. Ninety per cent of illness in children comes from respiratory infections, diarrhoea or skin troubles; most of these can be seen initially by trained health workers.

Section 3.2 BASIC ACTIVITIES IN MCH/FP

1. Surveillance of health of women from 14 years to the menopause, and of children during the first six years of life.
2. Ante-natal care of first and subsequent pregnancies, including medical termination of pregnancy where appropriate. Family spacing advice.
3. Intra-natal and post-natal care in home or Primary Health Centre.
4. Interconceptional care of women and their children by regular visiting to homes and villages.
5. Education of men and women regarding family size and structure, nutrition, cooking, hygiene and child care.
6. Supplementary food rehabilitation of malnourished children.
7. Referral of women or children to district or other hospitals.

Principles underlying the organisation and delivery of MCH/FP care.

8. Maximum delegation of responsibility consistent with training and good care.
9. Provision of medical and nursing care as near the home as possible.
10. Good communication between people.
11. Prevention as well as cure; early not late diagnosis.
12. An effective supervisory system is essential.
13. Maximal community involvement and self-help.

Table 1.

**The Health Team, Community Development Block
Establishment Recommended by Government of India (in a Malaria
Maintenance Phase Area)**

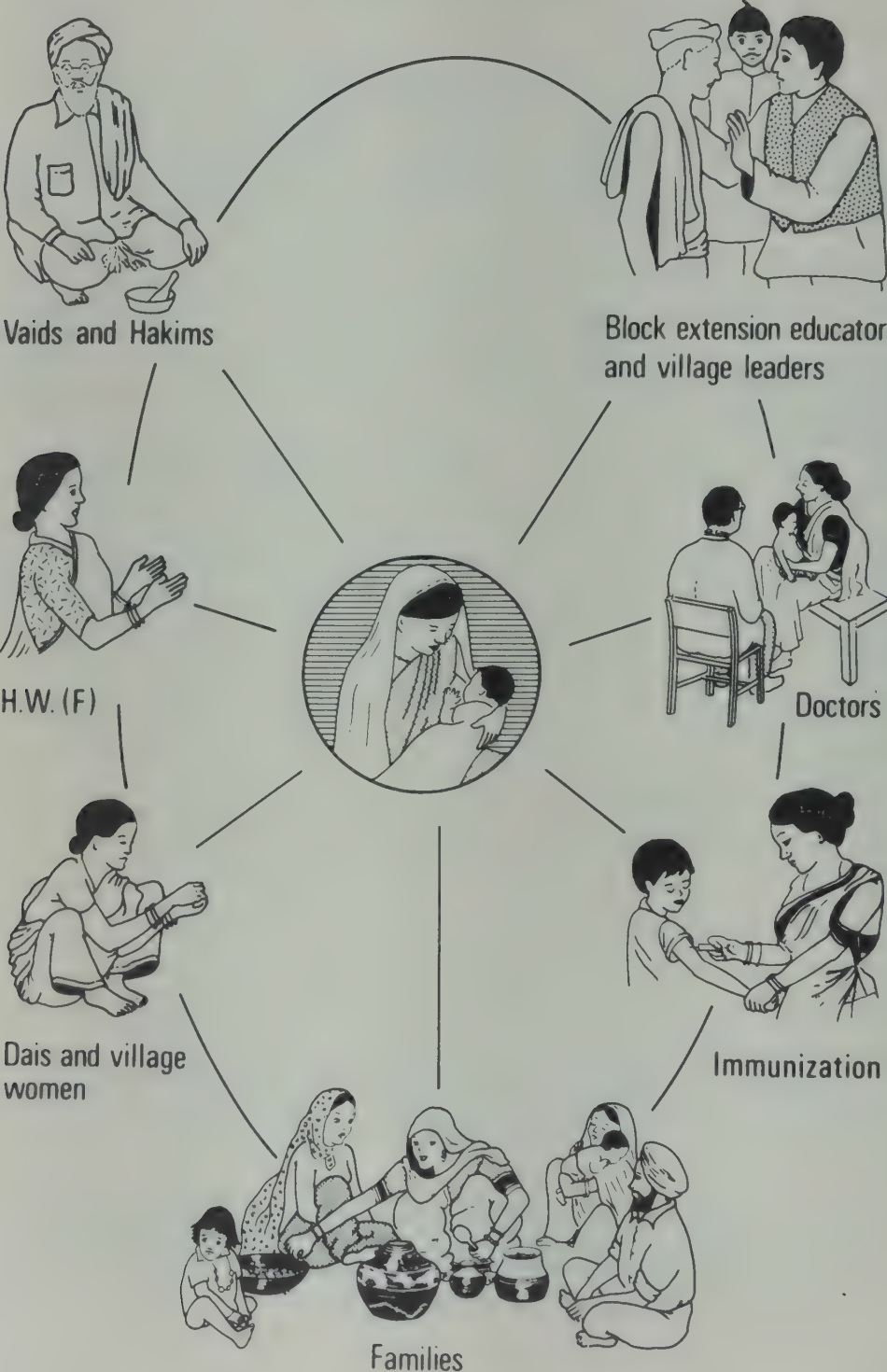
Former name of Category	Staff (original)	Additional Staff		Present Staff	Name of category (Multipurpose Worker Scheme)
		(1) Family Planning	(2) Basic Health Services		
Medical Officer	1	1	—	2	
Compounder	1	—	—	1	
Sanitary Inspector (senior)	1	—	—	1	Male Health Assistant
Health Inspector (including malaria surveillance)	—	—	2	2	Male Health Worker
Health Assistant (FP)	—	4	—	4	Male Health Worker
Public Health Nurse Lady Health Visitor	1	1	—	2	Female Health Assistant
Auxiliary Nurse Midwife	4	6	—	10	Female Health Worker
Basic Health Worker (including malaria surveillance)	—	—	8	8	Male Health Worker
Laboratory Technician	—	—	1	1	
Extension Educator	—	1	—	1	
Computer	—	1	—	1	
Store Keeper	—	1	—	1	
Driver	1	—	—	1	
Ancillary Staff	2	—	—	2	
Female Attendant	—	8	—	8	
TOTAL	11	23	11	45	

Note:

1. This present recommended establishment does not provide full staffing for a Block with 8 Subcentres (Fig.2) as there are only 14 Male Health Workers.
2. One Female Health Assistant (PHN, LHV) supervises 4 Subcentre areas.
3. Two FHW are attached to PHC, its village and area.

Figure 1

M.C.H. TEAM



Section 3.3 DEPLOYMENT OF THE HEALTH TEAM

The health team can work only through effective two-way communication. Information and referred problems and people will come to the physician; consultation advice, support and supplies must go out from him. The team needs to meet together at regular intervals for organised in-service training and review of the progress of their work (6.3.6).

In each Community Development Block there is a Primary Health Centre and six to eight subcentres situated at various distances from it. The PHC forms the headquarters for the health team and the referral point for the subcentres and villages and sends patients to the nearest hospital. Few patients travel more than 5 km to a PHC and most come less than 2 km. The subcentre is the first and most important point of focus.

The staff recommended in 1973 is shown in Table 1.

It is the Government's policy that workers will be redesignated and retrained and will, after retraining, function as 'multipurpose' workers each having multiple roles. The male basic workers and inspectors of all categories will be male health workers and health assistants; the ANM's and lady health visitors will be redesignated as health workers (FHW) and female health assistants (FHA) respectively. This new terminology is used throughout the handbook, although the changes will take place gradually throughout the blocks in the different States.

The recommended number of staff is not the optimum. One female health worker is required for each 4,000 people in an area of not more than 5 km radius from her place of work. Until increasing numbers of nurses allow the smaller figures to be reached the population of approximately 10,000 in the area of the subcentre will be considered to form two areas. An 'intensive' area within a radius of 5 km from the subcentre containing some 4,000 people and a 'twilight' area with approximately 6,000 people (Fig.2). In the intensive area the FHW will be responsible for the MCH and FP services which she will take to the women and children in a cycle of regular visits (3.4.3). In the twilight area she will be available on request only. In each subcentre area one FHW and two MHW work together. Two FHW's are stationed at the PHC, one providing nursing care to outpatients and admitted patients and the other giving MCH/FP service in the immediate neighbourhood of the PHC. (For work at the PHC see 3.5.)

The male health workers will each look after about 5,000 and will work in half the subcentre area. (Fig.2).

The female health assistant and male health assistant will also visit the twilight areas regularly as described later (3.4.4 and 3.4.6; 8.2.2 and 8.2.4).

There will be some variation in population coverage from State to State depending on numbers of workers in each category.

You will recognise there is a higher level of MCH/FP care in the homes and villages of the 'intensive' area where a continuous cycle of visiting should operate than there is in the 'twilight' area where the care given by the FHW will be available only on demand, i.e. for the episodic care of incidents of illness or pregnancy. In the twilight area the MHW will, during his cycle of visiting, be able to do some work of ascertainment which he will pass on to the PHC. In the twilight area good relationships with villages, village helpers and Dais are more than ever necessary and you and the FHA should spend more of your time

visiting in the twilight areas than in the intensive areas.

As more staff of all categories become available and more subcentres are introduced into the Block then the population served by each subcentre area should become less. But, as staff numbers increase the principles of team work and deployment should not change.

Section 3.4 WORK IN SUBCENTRE AREAS DIVIDED INTO INTENSIVE AND TWILIGHT AREAS

3.4.1. Basic requirements

The population of 3,500—4,000 people in the intensive area is that for which a FHW (ANM) can provide regular MCH/FP care. She is supervised by the FH assistant. You as medical officer must organise:-

1. Practical service programmes for FHW, FHA, MHW and MHA (8.2) and 7 below.
2. Regular supervision of the programmes.
3. Meetings between the health team (including yourself) and community leaders, indigenous practitioners and dais (3.4.2).
4. Regular monthly in-service training sessions for all health team members. You must attend and take part (6.3.6.).
5. Effective training of village dais and co-operation with them(9).
6. Recruitment of village health workers.
7. (1) above will include:
 - a) a regular scheduled visit by FHA (LHV) to each subcentre.
 - b) a visiting cycle for FHW (ANM) which will use every possible entry point for family planning to increase the number of acceptors (3.4.3) whilst delivering MCH care to intensive area.
 - c) delegation of primary care (first contact, health worker and patient) to FHW (ANM) with clear standing orders for guidance (8.3).
8. Care of members of the health team and their families (living quarters etc.).
9. A working relationship with District services with visits from specialist staff.

3.4.2. Your work at the subcentre and area

3.4.2.1. Division of work

Each medical officer must spend about half his or her time working outside the Primary Health Centre. This work consists of visits to villages, to subcentres and is clinical, supervisory and educational.

With two doctors at the PHC responsibility for the subcentre areas will be divided equally, each doctor working in and supervising half the subcentre areas.

To do this successfully you need to have a planned schedule of visiting with a published timetable showing the movements of the doctor and who is visiting on any particular day. Thus one doctor visits whilst the other works in the PHC and is available for emergencies. The doctors may agree on alternate days in the PHC or possibly alternate weeks. The second arrangement is more effective in areas where suitable overnight accommodation is available in subcentres and can reduce the time and cost of transport.

3.4.2.1.

3.4.2.2.

3.4.2.3.

Your capacity to do this depends upon your ability to travel. Ideally each PHC will have two jeeps but most have only one. When two jeeps are available one will be used daily for subcentre and village visits whilst the other is available for the referral of patients to hospital, for the collection of drugs and supplies and the delivery of specimens.

When only one vehicle is available and the supply of petrol is limited you must be as economical as possible. Sometimes the available jeep may be out of order. At all times other forms of transport must be used as much as possible. Thus local train or bus services may be available. Bicycles fitted with carrier bags are useful up to 5 km from the place of work. All health workers should be trained and willing to ride bicycles.

Whatever the circumstances you must visit the health workers regularly or standards deteriorate. They must never be left unvisited more than 8 weeks.

As medical officer you must always have concern for maintenance of the vehicles. Regular servicing and correct maintenance always pays. Maintenance teams operate at district headquarters, and you should know their maintenance schedules.

3.4.2.2. Arrangement of work

Your clinical and other responsibilities are set out in Chapter 4. You and your colleague must arrange a programme of subcentre and village visiting so that one Medical Officer is at the PHC whilst the other is visiting. Visiting and PHC work must be shared equally and each subcentre village visited for a morning every other week (i.e. one visit each two weeks). The programme can be based on each doctor visiting on alternate days or alternate weeks, depending upon local circumstances.

Assuming visiting will be undertaken for 5 days each week and each doctor is looking after 4 subcentres, there will be the equivalent of one day a week to visit other villages in the subcentre area. The frequency would depend upon availability of transport and distances from the primary health centre and between villages but a schedule should ensure that all villages are visited approximately every 4 months.

3.4.2.3. Visit to subcentre village

In the subcentre village in the intensive area which you visit each two weeks you will meet:

1. The FHA in succession in the different subcentres.
2. The FHW, each in her own subcentre every two weeks; alternate visits the FHA will also be present.
3. Each MHW in the subcentre once a month (there should be 8 MHW's in your area of 4 subcentres so they will alternate attendance and one will be present on each visit).

3.4.2.4. Visit to the subcentre clinic

Each subcentre once in two weeks. You will be assisted by FHA, FHW, one MHW and any trained dais associated with the centre. Social welfare worker will be available. See the Sarpanch monthly, the Chowkidar three monthly and the schoolteacher six monthly.

The FHW will have prepared the subcentre — the clinic area will be clean and tidy, syringes and instruments sterilised. The previous evening she will have told patients who are to come to the centre and warned the people in the houses to be visited. Dais whose patients are to be seen will also be asked to attend the centre or the home.

Most of the visit will be spent seeing homes of selected patients, and consultations with patients referred by health workers, some may have come from nearby villages. Some may require to go to PHC or be referred to hospital. Expectant women with high-risk characteristics must be seen and the place of confinement agreed. This period will include seeing any children from the village 'under fives' clinic.

The following records should be displayed for your inspection:

1. Maternity register for
 - a) new ante-natal cases.
 - b) women due for delivery in next month
- c) c) 'high risk' ante-natal patients not yet seen by doctor.
- d) births and deaths since last visit.
2. Eligible couples register for
 - a) FP couples — entry points — in next month
 - b) new FP acceptors.
3. Children under weight or referred.
4. Sick patients seen since last visit.
5. New case referrals of ill patients.
6. Problem cases, refusals to co-operate, immunization, nutrition, FP, etc.
7. Laboratory reports from last visit.
8. All other registers and records available as required.

Your supervisory work at the subcentre is to:

- a) Inspect the clinic which must be clean and tidy.
- b) Ask about mothers seen during the previous week; who is reaching time of confinement and what arrangements are made for delivery at home, in the subcentre or PHC or hospital centre.
If at home which dai and arrangements for home delivery. Any new pregnancies detected since the last visit. What is happening regarding medical termination, where is antenatal care given, and are there any 'at risk' features.
- c) Ask about bleeding in women; revealed by home visits by dai and FHW during the week's work in MCH/FP (in this and other villages).
- d) Ask about the total number of children 0–6 years of age seen during the previous week and specifically ask if any child is malnourished. This will be obvious if children are weighed and the 'under fives' charts are used. The FHW must know the guidelines for malnutrition.

3.4.2.4.

3.4.2.5.

- e) Scrutinise the cards and registers according to the information given by the FHW. Check the details of the notes which should be descriptive and use previously agreed symbols (7.5).
- f) Ask about patients seen on previous visits and those that the FHW has seen during the week; check if she understands the standing orders or instructions given for minor ailments.
- g) The numbers of patients at the clinic varies at different seasons of the year. Records can be checked at different times depending upon the numbers of patients attending; sometimes before, sometimes after and sometimes during the clinics. No difficulty in checking should arise if you know the expected number of pregnant women and the numbers of children under five years. The more carefully and frequently you check the more you will learn (6.4.4 and 6.4.5).

3.4.2.5. Visit to a village, other than a subcentre village.

Preparation for your visit to a village will be made by the MHA who will visit the previous week. You will be accompanied and assisted by the MHW who attends the village. The MHA will prepare a report for your guidance, bringing forward community health problems, patients needing examination, the school-teacher, dai, Sarpanch and social welfare workers will also have been warned.

The visit can be held in the school, ashram or Sarpanch's house.

You will locate the Sarpanch; members of Gram Panchayat, including the woman panch, the schoolteacher, dai, social welfare workers, Chowkidar, village health workers, who will all have been warned in advance.

You will:-

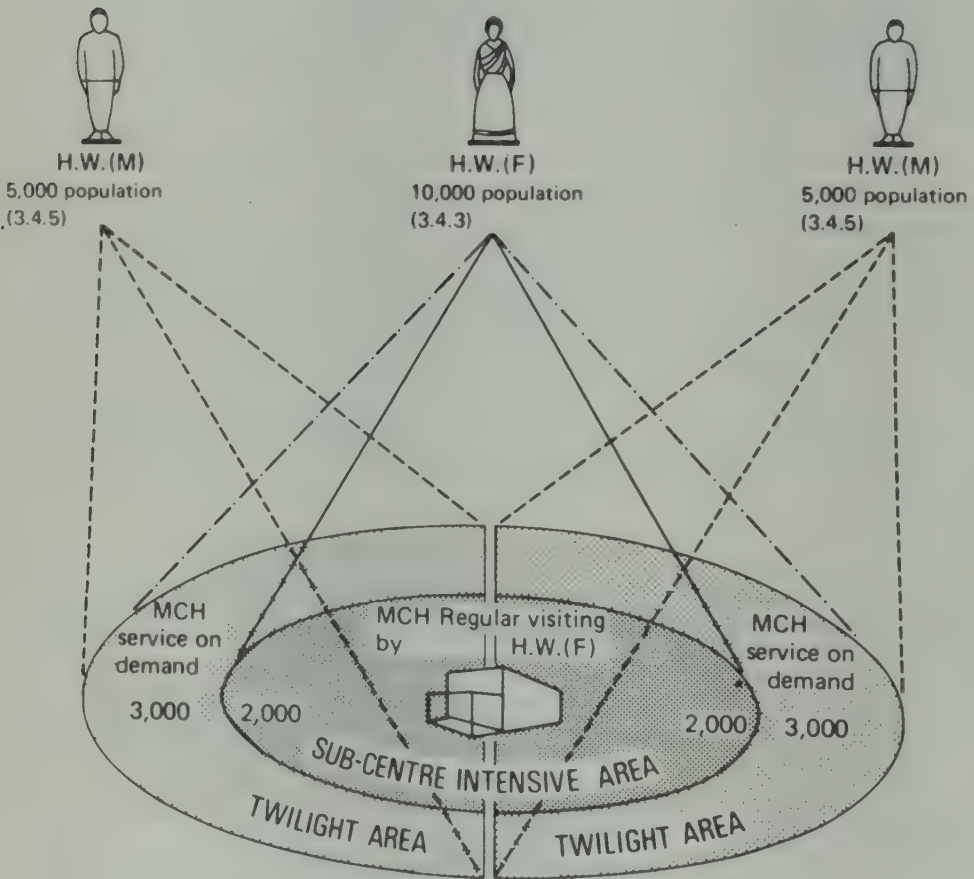
1. Discuss outstanding and new health matters with the Sarpanch.
2. With the dai see new ante-natal cases, recent births, discuss peri-natal deaths, small and not 'thriving' infants in the 'under fives' clinic, visit homes with ailing mothers or children: Inspect dai's maternity kit.
3. In school examine vaccination scars, 'check' immunization, discuss health education programme, examine new entrants, see children brought forward by the teachers (4.1.4).
4. Visit with the health workers (male and female) the homes of sick patients and new FP acceptors.
5. On entering any home first see the women and discuss with them family planning, the possibility of pregnancy, ante-natal care, confinement and post-natal care as appropriate in each situation. Then look at **all** children, noting general health and nutrition, look at 'under fives' cards carried by you or kept by the family, checking weight, immunization, etc., note if malnourished.
6. With social welfare worker refer suitable cases for supplementary feeding, check feeding centres and weight register. Discuss position about children 'at risk' (5.2.1).
7. Inspect the eligible women's register and compare this with information from the village leaders. Discuss response to FP approach to individual cases and patients in whom 'FP entry points' are expected before your next visit.

Figure 2

MCH SERVICE IN THE SUBCENTRE AREA (Recommended 1973)

To provide integrated maternal and child health services using the presently available health workers, the area and population covered by the sub-centre has been divided temporarily into *intensive* and *twilight* areas.

- The *intensive area* includes an area of approximately 5 kilometres radius surrounding the sub-centre with a population of about 4,000
- The *twilight area* is the periphery beyond the 5 kilometres radius surrounding the sub-centre and has a population of about 6,000.



Total population covered by subcentre: 10,000

Population covered by ONE Health Worker (female):

(3.4.3)
4,000 Intensive (Regular MCH care)

Population covered by EACH Health Worker (male):

6,000 Twilight (Service on demand)
2,000 Intensive
3,000 Twilight (see 3.4.5.)

As numbers of Health Workers increase the "Twilight zones" will disappear

8. See Chowkidars with reference to registration, births, deaths, and compare the numbers with those submitted by the health workers.

3.4.3. Female Health Workers in subcentre areas.

In the intensive area the FHW undertakes an organised round of three monthly routine visiting, in accordance with the MCH/FP care cycle, in which she takes services simultaneously to mothers and children (Fig.2). These are the interconceptional visits. If pregnancy occurs and continues the woman enters the pregnancy cycle (5.1.3.1). A central feature of her visits and work is the identification of 'high risk' patients, both mothers and children, and referral to the physician (5.1.3.3 and 5.2.1). She needs a register of families and a list of family members, all women between 14 years and the menopause, and children under six years of age (7.5).

During these regular visits the FHW discusses FP on each visit to each woman. Also there are special occasions when a woman is likely to be particularly aware and receptive — the Entry Points.

1. Confirmation of pregnancy — MTP (5.1.14.4).
2. Post abortion examination.
3. 36/38 weeks ante-natal examination (and other examinations).
4. Last visit in post-natal care, 10th–14th day.
5. Sixth week post partum examination.
6. Lactation seven month visit.
7. Lactation tenth month visit.
8. Resumption of three monthly interconceptional visits with FP advice after a pregnancy.

Advice must be personal and appropriate to the occasion.

The FHW cannot do more than 10–15 home visits a day; times of visits will need adjustment with seasons and local occupations: and with the demands of midwifery care which may interfere with the village schedule. Mothers and children must be seen together especially the pregnant and children at risk.

At interconceptional visits FHW enquires about health of mothers and children; discusses FP, gives supplies where appropriate; enquires about menses and lactation; weighs children, gives attention to feeding etc. **The objective is to ensure that every eligible woman in the intensive area is seen every three months.**

When pregnancy continues the FHW (ANM) will care for the woman as follows:

The pregnancy cycle:

1. Try to contact women before the pregnancy has lasted 12 weeks; at 6–8 weeks if possible and by the 11th week at latest. Some women will be found pregnant at a routine visit; information regarding others will come from the women themselves, from village workers or dais. When the FHW is known and in close touch with the people she is most likely to be told of early pregnancies and she is dependant on good relationships with everybody. Medical termination can then be discussed (5.1.14.4).

3.4.3.

3.4.4.

2. When pregnancy continues: if mother is not in a high risk group (5.1.3.3) optimal arrangement is to visit her or see her in the clinic monthly to 32 weeks, twice a month from 32–36 weeks, then weekly to term.
3. Minimal visits after first contact in pregnancy:
 - 1st 20–22 weeks
 - 2nd 28–32 weeks
 - 3rd 34–36 weeks
 - 4th 38–term
4. When woman does not come to the subcentre for examination FHW should visit her at home and follow the technique of visiting described in Ante-natal Care technique (8.3.11).

The aim is that the FHW should conduct half the deliveries in the intensive area of her subcentre; this proportion will be reached gradually.

Other services include immunization with tetanus toxoid (5.2.14), practical advice on diet, treatment of minor ailments, surveillance of mother and child for danger signals and distribution of Iron and Folic Acid tablets.

Arrangements are required for conveyance and protection of the FHW for night-calls and for obstetrical cover for the mother at night.

Check-lists of duties and standing orders for the conduct of ante-natal care, labour and the puerperium must be available for both FHW and dais (8.3.11–16).

Thus routine three monthly interconceptional care will link together family planning advice, the diagnosis of pregnancy, care of the child, nutritional advice. Ante-natal care and the pregnancy cycle also linked to care of other children and to family planning, post-natal care, family planning motivation and follow up.

Infant care to six months of age comprises birth weight, four neo-natal visits, and DPT vaccination, polio immunization when given: practical advice and help regarding infant feeding. The use of 'under fives' charts and the habit of regular weighing are essential parts of her work regarding young children. The FHW is responsible for immunization to the end of the first year and the MHW thereafter. Mahila Samaj and other local bodies will be involved as much as possible.

3.4.4. Female Health Assistants (Table 1)

Will reside near a subcentre in her area and do most of her work with mothers and children outside the PHC. Most of her time must be spent in the 4 subcentre areas.

She will spend one day with the FHW in each of the subcentres of the intensive area each week. This will be done in rotation thus occupying four days of the available six. Of this time one half day will be at your subcentre visit, i.e. your visits will coincide with hers each fourteen days. During the morning she will be home visiting and on alternate weeks in the afternoon a dai teaching session and meeting and on the others a clinic of selected cases.

She will spend two days each week in twilight areas (actually seven each four weeks) including one half day each fortnight in your village visit — this accounts for the six days of each week. Thus she can visit two different village areas each

week. She will assist in the preparation and participate in the training session at the PHC. This she shares with her colleague FHA each being responsible for alternate months.

She will meet the FHW and MHA at each subcentre each two weeks at the time of your visit.

N.B.

1. The FHA's are responsible also for supervisory duties at the PHC (3.5.2) and this will be done alternately by mutual arrangement. During this period of duty it will not be possible for her to spend six days each week in her subcentres and villages but the time given to duties inside the PHC must be as short as compatible with efficiency.
2. The FHA must provide holiday relief for each FHW for a month each year i.e. for four months. This with her own leave period would make the above schedule for her work and supervision impracticable unless relief workers are available. The same consideration holds good for the Male Health Assistant.

Obstetrical cover in Twilight Areas.

Obstetrical care, except for emergency situations, remains beyond the help of the FHW and FHA but they should always respond to a call. Some cases will rely on help from the dais or referral to the PHC by MHW or assistants. Some help can be given by securing priority in training for the dais from the twilight area and by stressing the importance of early referral routine.

FP work in twilight area villages under the schedule proposed for MHW coverage of every household in a 5,000 population should be possible every three months.

3.4.5. Male Health Workers (Table 1)

The following tasks relating to MCH/FP are the responsibility of the MHW.

1. Preparing and maintaining the register of vital events and eligible couples in each village in his area (approximately 6–7 villages).
2. Limited involvement in ante-natal ascertainment in the twilight area – only to the extent of referring women to the subcentre, PHC or doctor's visit or to send information to PHC or subcentre.
3. Report difficult deliveries by dais.
4. Post-natal general supervision: detection and reporting of malnutrition in children.
5. All immunization after the age of one year in the intensive area; in twilight areas all immunization from birth – 5 years.
6. Family planning, advice, motivation, distribution of Nirodh.

These tasks of the MHW are based upon a population of about 5,000 in 6–7 villages, i.e. in half the subcentre area (Fig. 1). For malaria surveillance to be effective each house must be visited each month; 50 houses in a day of 7 hours (Summer 0700–1400 hours, Winter 1900–1600 hours).

In the first 25 houses in the first four hours each day, he will undertake the full range of MCH work, checking family and family planning in addition to malaria. 25 more houses for malaria alone takes only one hour. Two hours then remain for recording, reporting and travel. Twenty of the twenty-two working

3.4.5.

3.4.6.

3.4.7.

days in the month will be used in this way. Of the two days remaining, one will be used to accompany you or MHA on visits to villages. The other is for PHC monthly training.

In this manner the round of 5,000 people in his area, in 6–7 villages, would be completed each month.

3.4.6. Male Health Assistants (Table 1)

Each Health Assistant works with 8 MHW's in half the population of the Block (4 subcentre areas), approximately 40,000 in about 50 villages.

He must have a field visit schedule which enables him to visit all 8 MHW's each week. Meeting with each MHW in a different village each week – a timetable is needed to co-ordinate this work which should occupy four days and depends on mobility.

During these visits he supervises the work of the MHW, checking homes visited by the MHW in the previous month. He will supply contraceptive drugs, vaccines and other equipment to MHW. Supervision of the workers should be concurrent and consecutive, at least 10 per cent of the houses should be visited to verify health activities of the previous month, checking a different group of houses each week.

He will maintain contact with dais and help in supplying dai maternity kits.

One day each week will be spent in a twilight area village during the visit of the physician and the FHW and FHA.

He also acts as an important link between the medical officer and his field workers and must co-ordinate his activities with those of his counterpart, the female health assistant.

3.4.7. Dais.

The dai is the recognised helper in pregnancy and delivery although her role varies in different regions. You must study the dais in the villages in which you work and having learned their relationships with the families you must then plan with your health team how best to work out a system of co-operation with them. It will not be easy to change the habits and customs of many generations and you will be able to do so only if you understand what the customs mean to both the dais and the families and if you can give them understanding and appreciation of the significance of your new ways, e.g. cutting and ligation of the cord is a most important procedure both from the point of view of the family and the dai and from your point of view – but the reasons for the importance are very different.

Remember the dais have the confidence of the women and are most fully informed of what is happening in the village. They have the earliest knowledge of pregnancies and are present at 90 per cent of all deliveries.

Most of the remainder of births are supervised by FHW (ANM's) and only a very small proportion (1 per cent) are supervised by a doctor – for the doctor is rarely sought unless there are complications in labour or afterwards.

So you must know how dais do their work and understand what they do and what they believe if you are to attempt to gain their trust. Only by doing so can the health team work with and through them for the good of the mothers in your area.

Their relationships with the Panchayat must be maintained and seen to be maintained. It is better if they retain their arrangements with families regarding gifts or payment but the PHC should supply additional incentives to co-operation in the form of clothes, dais kits and refills of material for kits.

The most important step to co-operation is that they should accept teaching from members of the health team and that this training should seek to modify and adapt existing customs rather than to establish completely new ones (9.5). The training will be carried out by the FHA and the FHW under your supervision. They will involve first the dais in the villages of their own twilight areas and the FHA and the MHW during their work must try to encourage dais from villages to attend the learning groups in the nearest village or the subcentre. Stipends are payable, guidelines for training are given in 9.5, and details of maternity kits in 7.3.3.3.

The dai's gradual education and training by being present with and watching the FHW, FHA and the medical officer at work looking after pregnant women, attending childbirths and giving care to mother and baby during puerperium is of great importance (9.5).

You must supervise this training by ensuring that you know its content and the techniques used, you must attend sessions sufficiently often to know what is happening and to let both the dais and their teachers know that you regard it as a matter of importance (9.5).

3.4.8. Community health workers*

The health team will not be effective unless the community itself is involved and responsive. This involvement is greatly assisted if there is someone in the village who, living there, can act as a link between team and community. For this purpose community health workers are recruited and trained. In most States the movement is operating and it is hoped that, within a few years, there will be a worker in each village.

It is important that the person chosen is well known and respected and that the local community shares in selection and appointment. The job is not full time and different people will be selected from village to village. Sometimes a traditional healer or practitioner of indigenous medicine, at others a dai or schoolteacher. For home visiting and surveillance programmes it is necessary that whoever is appointed should wish to serve the community, be vigorous and show leadership. A middle-aged woman with 4–5 years schooling is often a good choice because she has natural rapport with mothers and married women. Very occasionally young girls or boys may be employed.

These workers require training as laid down by the Government (9). A manual has been prepared to assist them to carry out their work (10).

*Known also at present as village health workers, in this handbook the terms are interchangeable.

3.4.8.

3.5

3.5.1

The community health worker must have:

1. List of eligible couples and motivate women to family spacing and planning.
2. List of all pregnant women; she will follow their progress, look for malnutrition and danger signs during pregnancy.

She must help in encouraging the acceptance of neonatal care and immunizations, use of weight charts for infants and children to six years, teaching on nutrition, health education related to general hygiene, waterborne and infectious diseases, chlorination of wells, sanitation. She will identify women and children 'at risk' and refer to FHW or other members of the health team. They will be able to give simple curative care and each six months give Vitamin A to children from 1–5 years of age (5.2.5). Will help in the collection of information on births and deaths, 'at risk' children and women, eligible couples and immunization.

The community workers must be in close touch with the FHW and health assistants and must be carefully and regularly supervised.

Section 3.5 WORK IN THE PRIMARY HEALTH CENTRE

3.5.1 Your work (MO) in the Primary Health Centre

The Primary Health Centre, the headquarters of the health team, is the place of referral from the subcentre areas and clinics and villages. It is also the place for primary health care for the population of the village in which it is situated and for its own area; most of the people who come for primary care travel less than 2–3 km. The attendance will depend upon the local reputation of the physicians and their capacity to help.

Emergency cases will also be brought to the centre. Accidents, people of any age who are ill and have not previously seen a health worker and women with complications of pregnancy and labour.

Half the time of each physician will be given to duties within the health centre where assistance will be given by 2 FHW's and the other staff (3.5.2 and 3.5.3).

In the subcentre clinics and villages which are visited regularly but infrequently the screening of patients happens almost automatically: screening must also occur in the PHC for patients who are not referred — most will be from nearby and a FHW must operate the same code of standing orders as are used in the subcentre. The pressure of work in the PHC should never prevent you or your colleagues making your regular visits to the subcentre areas.

This screening process will be particularly necessary for the care of pregnant women and of children brought to the 'under fives' clinic (6.2.12.2).

- 3.5.2
- 3.5.2.1
- 3.5.2.2
- 3.5.2.3

3.5.2. Female Health Assistants (Table 1)

3.5.2.1. Supervision

Although the principle work of the FHA is in the subcentre areas (3.4.4) one of the assistants must be responsible for the supervision of nursing arrangements in the PHC.

These include:

1. Clinic organisation.
2. Records, returns, reports and filing.
3. Centre house-keeping.
4. Maintenance, use and storage of nursing equipment.
5. Treatment room.
6. Care of patients in ward and labour room.
7. Field organisation.
8. Domiciliary midwifery:
 - a) midwives (FHW and ANM's)
 - b) dais training and practice

3.5.2.2. General duties

Overall supervision of the nursing staff of the Primary Health Clinic, and must work with her colleague FHA in planning the time-tables of the FHW's.

1. Assist with the Children's and Ante-natal Clinics at the main centre.
2. Arrange time-tables of FHW's so that one is on duty in ward and labour unit.

Clinic organisations: for ante-natal and post-natal care and children under five years: consideration needs to be given to the days and time suitable for local people.

The arrangement of the clinic for 'under fives' will be as far as possible like that described in 6.2.12.2, in mothers' clinics she will organise the flow of patients so that examination and interviews can be conducted in privacy.

The rooms and building must be clean and there must be sufficient receptacles for waste of all kinds with adequate means of disposal, usually in an incinerator. All the equipment, furniture and linen available must be used to the best advantage.

See that people are received courteously and that they understand the advice which is given.

Be responsible for the organisation of planned health teaching, discussions, demonstrations and displays.

3.5.2.3. Equipment

The FHA is responsible for equipment.

1. An inventory stock book must be kept for equipment, linen, furniture and a check made each month.

3.5.2.3.

3.5.2.4.

3.5.2.5.

3.5.2.6.

2. Home visiting and midwifery bags and contents are entered on this book but each FHW should be responsible for the safety and maintenance of the bag assigned to her.
3. Breakage and loss must be reported immediately, a note being kept in the inventory book, and a note given to the Medical Officer requesting a replacement.
4. All staff will be equally responsible for loss or breakage if the person involved does not make a report.
5. A register must be kept of milk stock received and distributed.

3.5.2.4. Ward Unit

The FHA will supervise the work of the FHW in maintaining a good standard of cleanliness in the wards and annexes. Adequate facilities for rubbish disposal, bathing, clothes washing and flushing of latrines must be provided and the patients taught and supervised in their use. Beds must be made up with clean linen as soon as they have been sunned after the patient's discharge. Treatment trays must be kept set and ready and used correctly. Lotions and poisons must be kept separately from other drugs and all must be adequately labelled.

Safe drinking water must be supplied to the ward. The FHA is responsible for a high standard of nursing care.

Every effort must be made to keep the ward and labour room free from flies and other insects.

3.5.2.5. Labour Room

This room must be cleaned thoroughly each day and always kept set and ready for use. There must be an adequate supply of sterile towels, pads, swabs and cord dressings done up in separate packets and facilities for the immediate boiling of equipment. Emergency drugs must be to hand, together with drip equipment. There must be a bucket with fitting lid for waste and adequate hand-washing facilities.

A warm receiver must be provided for the baby and a special place arranged for baby bathing.

3.5.2.6. Sterilising

Regular autoclaving will be carried out for the centre and visiting bags. Autoclaving must be in accordance with standing orders and individual packets rather than bulk stock made ready for use.

N.B.

Autoclaves require a 4-burner stove to reach the required temperature and pressure. If this is impossible, any sterile stock required must be boiled immediately before use and used damp.

3.5.2.7

3.5.2.8

3.5.3

3.5.3.1

3.5.3.2

3.5.2.7. Domiciliary Midwifery

The FHA will help the FHW to maintain a high standard of practice, and will ensure that all equipment is complete and available.

Friendly relations must be cultivated with the dais. Simple classes arranged for them (9.5).

3.5.2.8. Supervision of Subcentres

1. The FHA should see to the cleanliness and order of the subcentre and its equipment and check the linen and drugs during her regular visits.
2. Help the FHW's to keep their maternity bags and records in good order and try to solve any difficulties arising. Spot checks are sometimes required.
3. Occasionally attend a maternity case and make a post-natal visit with the FHW.

Purposes of Supervision.

1. To promote efficiency of the work of individuals and the team.
2. To improve the quality of the work.
3. To maintain a happy and contented staff.

3.5.3. The work of the FHW at the PHC

3.5.3.1. General Duties.

Two FHW's will work at the PHC. They will share duties.

1. Within the allotted headquarters village area the FHW (ANM) is responsible for home deliveries, and will be available to attend if called by the dai. Any call for a delivery **must be attended to** whether it comes from in or outside the intensive area.
2. A FHW will carry out a cycle of family visiting within her own visiting area (3.4.3) as in the subcentre areas.
3. A FHW will be responsible to the FHA for the maintenance and use of the labour room and the care of the ward and patients. PHC deliveries are the responsibility of the FHW on duty or call.
4. A FHW will attend Ante-natal and Children's Clinics and take her turn in the treatment room at the medical clinic.
5. An effort must be made to contact all **indigenous** dais in the main centre area and give them training according to national policy (9.5).
6. Like all health workers, the FHW has a special responsibility to spread the practice of family planning and spacing and to give general health education especially in relation to nutrition and sanitation.

3.5.3.2. Ante-natal Clinic

The centre must be arranged to give maximum privacy. Careful history-taking is most important and all relevant information must be acted upon.

Clinic must provide routinely for:

1. Registration and records.
2. History taking and follow-up advice.

3.5.3.2.

3.5.3.3.

3. Weighing.
4. Urine testing.
5. Hb taking (monthly unless satisfactory).
6. Blood pressure.
7. Medical examination (as early in pregnancy as possible).
8. Obstetric examination.
9. Treatment of minor ailments, giving of diet supplements, and any medicines.

The FHW should decide whether or not a pregnant mother should see the doctor (8.3).

Health education is an integral part of all health activities. The Ante-natal Clinic is a good opportunity for small group, as well as individual, teaching. A regular programme of group teaching must be organised to inform the women on matters relating to family planning, pregnancy, labour, the puerperium, infant and child care and nutrition (9).

3.5.3.3. Children's Clinic ('Under Fives').

In the subcentres the Ante-natal and 'Under Fives' clinic may be combined. In the main centre two separate clinics are usually better.

FHW will see all children. For conduct of the clinic see 6.2.12.2.

CHAPTER 4

Your job as Medical Officer, Clinician, Teacher and Manager

To be able to act as leader of the health team you must understand and be able to fulfil a number of different but related roles.

You must also understand and accept that the work of a physician extends beyond the clinical role. Success in the clinical role will depend very largely upon success in other roles.

Three major roles can be identified; the clinical, the teacher of the health team and parents and children, and the planner-manager.

Great emphasis is placed on the word 'team'; a group of people working together for a specific and defined purpose. Each member of the team must make his or her contribution to the work of the whole; each must play a personal role all of which fit together to produce the desired result. The leader of the team can only hold that position by commanding respect by his or her work and being prepared to give more effort than other members of the team. You should never be in the position of asking anyone to do anything you are not able to do yourself and have not at some time done.

Section 4.1 CLINICIAN

In helping mothers and children it is quite apparent that you will be able to give personal service to only a small proportion of those who need it. You must therefore use the time available for clinical work as carefully and as efficiently as possible. Many people will be referred having already been seen by another member of the team: yet there cannot be an absolute bar to clinical access for patients and there are always emergencies to be met (7.2).

4.1.1. The Clinical Role

The clinical role itself is complex and whenever you meet a mother and child and try to help them you must consider your words and actions in relationship to three objectives, the relative importance of each varying with the circumstances. So, whenever you speak to a mother alone, a mother with her children, to older children or to health workers, think of clinical work having three objectives.

1. **Curative** — the objective you have when you give a patient advice together with some medicament or treatment. If she understands what you say and what you want her to do with the preparation or treatment and if she trusts and believes you sufficiently to do it then it should remove her symptoms and help to cure her illness or to heal her injury. Similarly if a mother trusts and understands you she will follow your advice regarding her child.
2. **Preventive.** You can sometimes also give a mother or parent advice about or treatment for a symptom or an illness which if she understands and follows the advice, will prevent that illness or injury returning another time or spreading to other members of the family or household. Often you can give a healthy person advice on the avoidance of illness or protection against it. This type of action may be directed towards community protection as well

as personal protection, e.g. safeguarding water supplies or giving a whole village protective vaccination or immunization.

3. **Promotion** (i.e. the improvement) of health. The spread of education, knowledge and advice which by changing behaviour or usage will improve the health of individuals or families.

This type of education is wide ranging from matters of personal habit to change in group customs but will not be followed unless it is both understood and accepted.

Always remember to think of these three types of help every time you see a patient, teach or organise health care.

To carry out this clinical role you need knowledge about people, health and illness (5), the skill to give effective help (6), supplies of medicine and materials (7), and the concern and determination to do your best for every mother and child in your care.

People soon notice if you show interest and concern. They will come for your help and advice if they know that you care about them, that the advice you give is understandable, and the medicine practical from their point of view. Above all, they must trust you.

Everyone has limitations, and you must understand when and how to refer patients to hospital for treatment or advice. This skill will come with experience. Decisions depend not only on the clinical state of the patient but upon distance, availability of transport and upon the willingness of the patient and his family.

4.1.2. Responsibilities.

1. All preventive and curative services for mothers and children coming or referred to you.
2. Patients admitted to PHC or seen therein; emergency consultations.
3. Examination of FP patients referred: provision of services.
4. All the pregnant women in the intensive areas should have ante-natal, natal and post-natal care arranged for them. Health staff must be trained to ascertain pregnant women 'at risk' and to refer them to you (3.4.3).
5. All children below the age of 5 years living in the PHC area and in the intensive areas of the subcentres should be immunized and as far as is practicable those in the twilight areas. Referred cases are your responsibility.
6. School health care in PHC areas; school entrants and children referred by teachers or parents.
7. Supervision of immunization and vaccination programmes; all anti-rabies injections must be given by a doctor.
8. Selection and monitoring of children suitable for supplementary feeding programmes.

Fulfilment of clinical responsibility.

You will work in the PHC, the subcentres, in village centres and the homes of your people throughout the Block.

In the Primary Health Centre you will see patients referred to you by other members of the health team for consultation. Most health centres have a number

of beds for patients needing admission and you are responsible for diagnosis and care and treatment. Sometimes you may find it necessary to see patients who have not been seen already by the health staff. In the Primary Health Centre inpatient, outpatient, labour ward and emergency care is along familiar lines with direct patient-doctor relationships, with medical treatment assisted by the nursing auxiliary staff. At the beginning of your work in the Block referrals and out-patients might be few but as the organisation of your health team progresses and you become known as an interested doctor the numbers will increase. This will take time but must never prevent your regular visits to subcentres and villages nor must it interfere with your teaching or managerial roles for it is on these two aspects of your work that all others depend (4.2 and 4.3). At the PHC the regular ante-natal, post-natal and 'under fives' clinics are done by the FHW's attached to the centre with reference when required. The FHW's will also supervise normal labours and births.

You will be responsible for forceps delivery, manual removal of placenta, episiotomy; you will be required to make decisions regarding the conduct of abnormal delivery. In the care of infants and children arrangements for re-hydration, lumbar puncture and minor surgery (6.1 and 6.2).

Vasectomy and tubal ligation will be performed as necessary (6.1).

At all times an emergency maternity bag will be maintained in the PHC for answering calls to obstetric cases. In addition each doctor will carry a medical and an obstetrical bag **whenever** he or she leaves the PHC to visit the subcentre areas.

4.1.3. Relationships with patients

It is well-known that many patients do not take medicines as prescribed and do not follow advice. You must appreciate this in your relationships with patients and in your staff training meetings and must deliberately set out to develop a technique by which your advice is understood, remembered and followed and your medicines are used as you intend.

The following factors influence the degree to which the patients comply with 'what the doctor ordered' to be done or taken.

The factors are:

1. The patient's personality and educational status.
2. His or her beliefs about the condition requiring consultation.
3. The type of medication, liquid, solid, pleasant, unpleasant.
4. Frequency and duration of the treatment.
5. The degree of understanding between doctor and patient.
6. Simple failure to understand and remember.

Possibly the last two are the most important.

Understanding between patient and doctor arises largely by the degree to which the patient is 'satisfied' with the consultation. Great satisfaction is followed by high acceptance of medicine and advice; dissatisfaction by poor acceptance. Satisfaction comes when the patient finds a friendly doctor who displays interest in the patient as a person and who meets the expectations of

4.1.3.

of the visit. Many patients do not declare their real expectations which must be drawn from them by the doctor.

To do this:

1. Find out what the patient is worried about — what he really thinks is wrong and what others have said, relatives, neighbours and friends are usually quick to give opinions.
2. Find out what the patient expects as a result of the visit. The expectations may or may not be possible to meet — if not explain why.
3. Provide information about diagnosis, cause and, if possible, results of the illness or symptoms in a way the patient can understand.
4. Be easy and friendly rather than briskly businesslike.
5. Use simple language — avoid medical terms.
6. Show interest in the patient as a person, enquire about family etc.

Failure to understand and remember about treatment also stems from several causes.

1. Most patients lack even the simplest medical knowledge.
2. Many have false ideas, e.g. concerning the processes of digestion; many think medicine can be stopped as soon as the patient begins to feel better; drugs are expected to act almost immediately and if this does not happen may be stopped.
3. Many patients are too shy to ask for explanations when they are puzzled.

Patients are more likely to forget what they are told in strange surroundings than at home: also forgetfulness is greater if the patient is frightened. Vague statements are easily forgotten.

Patients remember and accept advice best when it is given in stages, e.g. like this:

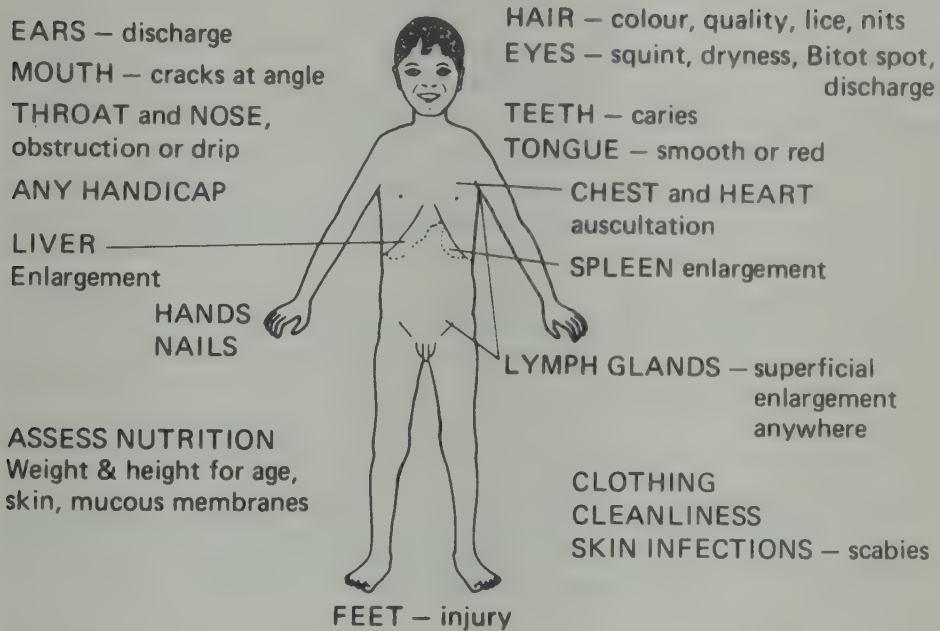
1. First I am going to tell you what is wrong
2. Second I am going to tell you what you . . . must take
3. Thirdly I will tell you what you must do.
4. Fourthly if you take your medicine and do what I say this will happen

You must

1. Use short words and sentences, be definite.
2. Repeat advice and directions whenever possible.
3. Make advice positive — stress its importance.

Figure 3.

EXAMINATION OF CHILD AT SCHOOL



4.1.4. School Health (Fig. 3).

This is a responsibility of the medical officer and must be organised from the PHC. You need to have a list of all the schools in your area, their grading (Primary, Middle or High schools), number of teachers, boys and girls, etc.

The male health assistant collects this information and for each school a methodical check must be made on:

1. Environmental sanitation, i.e. the school buildings, seating arrangements (desks and mats), water supply, use of waste water for kitchen garden, use of flower or vegetable garden, linking of school feeding programme with UNICEF or CARE. Latrines and their use by both sexes and hand washing. Health education and supervision, by a nominated teacher or all teachers in rotation. General environmental tidiness.
2. Personal hygiene. Attention to hair, eyes, nails, clothes, feet, shoes, general check for five minutes each day by class teacher.
3. Immunization. Both male and female assistants will help and in subcentre areas FHW and MHW can look after their own schools with guidance from Health Assistants. Main protections, DT, BCG, TAB if requested.

4. Care of minor ailments (Fig. 3); health staff will help teachers deal with conditions such as bathing of eyes, care of skin, pediculosis, scabies, etc. Medicaments, some from PHC and others from funds collected by the school. District Education Officer and BDO should be involved in a programme to help with the provision of medicines.
5. Medical examination. Examination is required twice during the school years, on entry and in the 10th or 11th years. Arrangements for follow-up are required. Note is taken of illnesses. Make visits to the homes of children whenever required.
6. Health education. Given both by teachers and by health staff who will assist in the preparation of the classes using practical examples relevant to personal hygiene. Each school will be visited monthly by a member of the health staff.
7. Involvement of teachers is important and to bring this about visits by the doctor are usually required. Questions of environmental and personal hygiene can then be discussed and a method of regular supervision evolved dealing with minor ailments also. By doing this you will learn to appreciate the viewpoints of the teachers and develop a relationship with them which will assist your acceptance in the area.
8. Involve the District Red Cross Secretary, the District Education Officer, the Mukh Savika in the school health programme for they can be of great help and supplement your resources of skill as well as material.

Section 4.2 TEACHER

In your daily work in the PHC, in the subcentre, in negotiating, in planning you must **always** regard yourself as both a learner and a teacher. You can learn from every clinical episode and from every type of situation if only your attitudes will allow you to do so. Your every action whether you realise it or not sets an example and influences staff and patients; so your actions and your life must be consistent with your verbal teaching — only consistency brings regard, people observe and remember.

Thus every action you take and every statement you make has its own educational value; this is true for both health staff and everyone in the Community Block in whatever situation you meet them. These teaching episodes whether they are clinical, general or managerial must be spontaneous and adapted to meet the needs of the situation of the moment.

They soon become a habit as you make the best of every situation.

Another type of teaching which you must do is very different from the above and just as important. This is planned systematic teaching to health workers and sometimes to other special groups (9).

Teaching of health workers is therefore a continuous process partly spontaneous as opportunity offers and partly planned as in the monthly day meetings of the health team when a regular programme of subjects can be discussed together with current topics and problems arising from the local MCH programme. This requires regular preparation both for content of teaching and for techniques of teaching (6.3)

The requirements of the new type of worker are different from the old and a new training syllabus schedule is being prepared for entrants (9). But this does not cover the existing workers and in most Blocks retraining to cope with the new routines and the new relationships will be a matter for the medical officers — conversion training implies a thorough knowledge of the new role of each member of the health team and of Government policy.

Most of the teaching of mothers in small organised groups will be done by the health workers but here again the responsibility will stem back to you for you must teach the health workers the most effective techniques to use, including simple visual aids, in order that real communication exists and you must supervise their teaching (6.3).

Finally you should encourage the recruitment of village workers and the training of dais. They also must be trained to carry out their jobs and to recognise relationships (3.4.8).

Section 4.3 MANAGER

4.3.1. Team co-ordination

Where there are two medical officers the senior will take administrative responsibility but they must work together as partners. When you act as physician in a Community Block you must be the leader of the health team and be able to justify that position. The essential facts about a team cannot be repeated too often — that it is a group of people who work together to achieve a common objective; in this case the objective is the delivery of health care to mothers and children. The leader is responsible for the operation of the team as a group each category of which has his or her particular role different from that of the other members: each contributes to the work of the whole but together the team is more effective than if the same number of health workers worked independently. The leader must be able to plan and co-ordinate the work, supervise the role of each member and to manage the whole team so that it works as a unit. Thus being the leader demands that you have command of the technical knowledge and skills required of all the health workers, that you understand the importance and management of personal relationships and the art of getting people to work together. Just as you supervise the members of your team so you will be supervised from your district and State levels. Although the actual overseeing of work will usually be done by the senior male and female health assistants, the medical officer is still responsible and must make regular sample checks.

The essence of effective operation is that each member of the health team knows the arrangements of his own timetable and also everyone else's over a unit of time — whether a week, a month or three months. Thus every member knows what each of the others is doing and where he or she can be found. The work of the team is then so arranged that subcentres and villages are visited in rotation and that a planned series of activities takes place in each. Duty sheets should be available at the centre and with each worker (3).

Although it is the physician's responsibility the actual planning of the timetable is a joint exercise with the field staff and particularly the MHA and FHA

4.3.1.

4.3.2.

and this allows discussion of difficulties etc. Problems regarding supply should be discussed, at the same time. To plan effectively you must know not only the details of the work of each of the other health workers but the time taken for each of their items of service, distances travelled and the time taken for the journeys. The medical officer's timetable will be circulated to all staff in advance.

The medical officer must always have a time, at regular intervals say fortnightly or monthly, when he can meet members of the team separately to discuss personal problems, service problems, grievances; when living quarters can be inspected for repairs. Staff welfare and protection: Many FHW's (ANM's) are unmarried or their husbands live elsewhere; they might not be from the village in which they work and be lonely. This activity is very important for continued morale and to assure each member of the team that he or she is regarded as an individual person and not simply for the work they do.

4.3.2. Supervision (also 6.4)

Supervision is an essential part of the service. All members of the health team must be supervised and must understand the purpose of supervision.

Supervision must be systematic and take note both of quantity and quality of work relating to each category of patient, supplies of medicine, arrangements for confinements, records. Real supervision can be learned only by practical experience. It is exercised both personally and through the female and male health assistants. Checks of all delegated functions must be made to ensure work schedules are being fulfilled and the quality of work is adequate. This is done during visits to subcentres by sampling clinic cards, family folders, labour and ante-natal, post-natal records, school inspection registers, investigation of perinatal deaths etc.

Managerial functions i.e. planning and operating the health team and evaluation of the work cannot be done without the maintenance of records (7). Records must be as simple as possible, should relate to the individual patient or family yet be capable of giving an accurate picture of the work of the health team over a given period of time — usually a yearly review (7).

One of your most important managerial functions is to ensure that drugs and medicaments are properly and economically used. Another is to check that supplies are ordered and received in sufficient quantities at the proper time and in the manner required by the State in which you work (7).

Each month at the regular day meeting the health assistants will submit their duty sheets, timetables and tour programmes. These will be checked and co-ordinated with your own timetable which will be reproduced and circulated so that you can always be found when required. You must remember that the duty list and time keeping will not be effective unless everyone knows that you yourself are never late and that you keep to your timetable unless coping with a clinical emergency. In planning you will seek the guidance of the public health nurse from the District Office for she will relate to the FHA and FHW and will be aware of work in Blocks contiguous to yours.

When required you will submit reports on work programmes to the District Office; assisted by the Block Extension Officer you will prepare and transmit all the required returns, stock, registers, transport and maintenance forms to

District Headquarters. All matters relating to the PHC and subcentre personnel and management are your responsibility. These administrative returns vary from State to State and must be checked locally. You must tell your District Health Officer if any of the records are difficult to maintain. This feed-back will be your contribution to maintaining services. Remember they are at least as useful to you in your supervision and Block planning as to the District Administration. You will report any outbreak of infectious disease to District Headquarters and make any investigations required.

As medical officer of the PHC you must integrate with the district services. You must get to know the obstetrician and paediatrician at the district hospital and come to a working arrangement with them regarding periodic visits to the PHC for consultations or for services; in some situations the District Officer will have a paediatrician and obstetrician to help him and also a public health nurse who has experience in supervision and can assist with in-service training. All programme directors and organisers must have had active field training and experience.

You will initiate and make case referrals to hospital, provide transport and arrange for a HW to accompany the patient and relatives to hospital.

You can increase your influence in the villages and in the areas of the PHC and subcentres and Block by fostering close relationships with community leaders who have both local knowledge and authority. See and consult them when you visit the subcentre areas and the villages, discuss services and changes in service, new services to be introduced, health problems, schools and school-children; problems such as immunization. Always discuss and inform before making decisions or taking action. Listen to suggestions, ask for and consider advice but have good reasons for action.

Evaluation of work. The work of the team and the impact made upon the health of people in the Community Block can only be assessed if data is collected and critically reviewed. The types of data required are given in Section 7.5.

Section 4.4 DELEGATION

Throughout this book it is made quite clear that your work will only develop effectively if you succeed in delegating tasks to other members of the health team. Delegation does not mean the shedding of responsibility for that is still yours; it does mean training and ensuring that your colleagues know precisely the content of their own roles and are trustworthy to refer cases in accordance with published standing orders (8.3).

The functions you will delegate in relation to MCH are as follows:

1. General Care by regular visiting and education regarding health and hygiene (3.4.3).
2. Family Planning Care. Care of the mother includes help regarding family spacing and planning. This means assistance by advice, education and supplies as an integral part of the MCH care system.
Family planning care is given at a minimum of eight points and as many more as opportunity offers. The intention is that the effect should be cumulative through as many contacts as possible (3.4.3).

3. Care during pregnancy (3.4.3).

1. Diagnosis of pregnancy; referral for MTP where appropriate.
2. Recognition of 'high risk' and screening of expectant women.
3. Care following abortion or miscarriage.
4. Care during normal delivery.
5. Referral of abnormality during labour.
6. Post-natal care of mother and child.
7. Care of child after neo-natal period, nutrition, infection and immunization
8. Return to interconceptional cycle of visiting care.

CHAPTER 5

What you must know about mothers and children

Section 5.1 CARE OF MOTHERS

5.1.1. Introduction and Principles.

Here you will find the knowledge you need to look after women and mothers in your Community Block. The contents are presented so that they help you to respond to questions and situations and to train FHW's.

Thus the section is a statement of the principles which will guide your actions. These principles have been used to formulate the example of standing orders for FHW concerning pregnancy, labour and post-partum care given in Section 8.3. The standing orders should reflect the principles and provide the FHW with a clear course of action.

You should have had experience of the common obstetrical techniques and have dealt with common obstetrical emergencies and as an intern you should also have had experience in a rural health centre. Thus you should be competent in common techniques and know the limitations regarding major procedures imposed by your own experience and by the equipment and assistance available. Here the model is the 'average' Block set out in Section 2.4.

Your work for mothers and women has five aspects. In practice they overlap. The care of the woman during her child bearing years — the interconceptional cycle (5.1.2).

The care of the woman who becomes pregnant — from recognition of pregnancy to the post-partum examination (5.1.3.—5.1.13).

Common illnesses complicating pregnancy (5.1.8).

Family spacing and planning (5.1.14).

Gynaecological complaints (5.1.15).

Generalisations relating to the care of women and mothers.

1. A girl's physique at menarche reflects her nutrition and illness experience during childhood.
2. Human behaviour is governed by the customs and beliefs of the family of origin and by education.
3. Behaviour is also affected by economic forces.
4. A woman's reasons for her own actions will seem right to her. Yet they may be hidden from you or may appear quite irrational.
5. You must be familiar with and use the local language, observe and respect local customs and beliefs.
6. A woman will accept and follow your advice regarding herself and her child only when she trusts you.
7. Most women have easier natural rapport with traditional and local healers and dais than with Government medicine and the health team.
8. There is evidence that country people value, want and will seek 'Western Medicine' when it is available and the service is given with care and concern.

- 5.1.1.
- 5.1.2.
- 5.1.3.
- 5.1.3.1.

9. You must always be aware of the requirements for normal health and work to make them available.
10. Women nearly always go short themselves for the sake of children or men but they may not have the knowledge to use the available food in the best way.

5.1.2. Care of women during childbearing years.

The organisation required for the delivery of regular systematic MCH care to the women of the 'Intensive Area' is given in Chapter 3. This routine visiting is a function delegated to the FHW (ANM) and direct supervision is carried out by the FHA (3). But you as physician have responsibility, must know the details of the cycle of visiting and must make arrangements which will fit the distribution of the people and the type of villages in your Block.

Visiting in the intensive area is based upon a population of 4,000 people. The register will contain about 450–600 married women (eligible couples). Each must be seen every three months (3.4.3).

Obstetric Care at PHC

The obstetric care of patients at a PHC has severe limitations because of limited facilities and expertise. To get good results, two things are essential: (a) a good referral and back-up service, (b) early diagnosis of complications of pregnancy and labour needing referral. Patients may come directly to the PHC or be referred by other health workers from subcentres. Often they come in labour as emergency cases. Only through **Efficient ante-natal care** can good results be achieved.

Personal communication, understanding and rapport between the patient and health worker are vital to good pre-natal care. You must explain to the patient what she must do during pregnancy and how she must play her part. Sometimes why referral to hospital is necessary.

5.1.3. Care of women during pregnancy.

5.1.3.1. The Pregnancy Cycle: Once pregnancy is suspected the woman enters the pregnancy cycle of care.

1. Diagnosis — confirmation of pregnancy.
2. Period of possible abortion — by choice or by chance.
3. Ante-natal care, 'at risk', danger signals.
4. Place of confinement.
5. Conduct of labour.
6. Puerperium.
7. Care of baby.
8. Lactation.
9. Return to interconceptional care.

In view of MTP Act the early diagnosis of pregnancy has added importance for the first ten weeks are the safest period for termination. If the patient has had more than 2 or 3 children you or the FHW will discuss medical termination or post-partum sterilisation with her.

5.1.3.2. Ante-natal care:

Findings and symptoms at first examination vary with the duration of pregnancy.

1. Amenorrhoea.
2. Sometimes nausea or vomiting.
3. Early subjective changes.
4. At 8/52 vaginal examination; changes in size of uterus and discolouration of vagina and cervix. Hegar's sign (6.1.2.1).
5. At 12/52 fundus just palpable if woman not obese.

First ante-natal examination — opportunity to gain rapport.

1. Obstetric history, number of pregnancies; any complications; duration of labour and mode of delivery, miscarriages, foetal deaths, SB etc., twin pregnancies, other 'at risk' signs.
2. Medical history of mother, e.g. rickets, rheumatism, urinary troubles, family history of hypertension, etc.
3. Socio-economic history and details, literacy, occupation.

4. History of present pregnancy.

Date of last menstrual period and how calculated — type of calendar, previous menses; date confinement is calculated (1st day LMP and nine months + 7 days); note made of drugs taken; where the mother intends to have the baby. Maternal immunizations.

5. Physical examination.

Height, weight and BP recorded.

Blood. Hb. ABO and Rh grouping (if possible)

Pallor, oedema, lymphadenopathy, oral hygiene, varicose veins, breasts, heart, chest.

Specimen of urine tested for protein, sugar, pus cells (6.2.4.1).

Blood for VDRL to referral laboratory.

Repeat Hb and test urine each visit.

Abdominal palpation. In early pregnancy, size of uterus checked and abdomen palpated for enlargement of liver or spleen or other masses. At the first visit do a vaginal examination to make sure there is no pelvic tumour, prolapse, scarring from old tears, cervicitis or vaginal infection — particularly important if home delivery is planned. Also confirms that pregnancy is uterine and not extra-uterine.

After 28/30 weeks, record fundal height. Palpate the uterus to check the presentation and position of the child. Record foetal heart rate and position.

In a primagravida do a vaginal examination late in pregnancy. Do this even when the head is engaged to palpate the ischial spines and determine the type of pelvic outlet.

At this stage the FHW must be aware of the points at which she must refer mothers to the doctor either on his next visit to the subcentre or earlier to the PHC (8.3.10).

Ante-natal care in the second and third trimesters (or after twelfth week) given by FHW (ANM). See standing orders 8.3.10.11 and 3.4.3. At each visit advice is given about nutrition, hygiene, care of breasts, and at the last visit

there must be further discussion on family spacing or post-partum sterilisation. For advice and help on diet (5.1.3.4) and anaemia (5.1.8.1).

From the first visit women must be taught to note and report danger signals:

1. Vaginal bleeding.
2. Abdominal or pelvic pain.
3. Fever.
4. Swelling of feet or limbs.
5. Blurring of vision.
6. Marked reduction of urinary output.
7. Escape of watery fluid from vagina.
8. Nausea, vomiting, epigastric pain.

At subsequent visits:

1. Take history of health since last visit.
2. Check regular intake of food supplements.
3. Record weight.
4. Palpate abdomen.
5. Measure abdominal girth and fundal height by palpation.
6. Take systolic and diastolic BP.
7. Test urine.

Patients who do not keep appointments — diary of booked cases in each village, see standing orders (8.3.11) — job responsibilities (8.1).

If confinement is to take place at home ANM must visit (might be in the girl's village with her family). Home can be examined and area selected; practical arrangements made for labour and to call the midwife (or dai), transport for midwife (or dai).

If PHC or hospital delivery is indicated (see below) booking must be made by seventh month and arrangements made for admission when pains begin.

Visits arranged according to standing orders (8.3). Records must be available either with mother or with ANM or PHC so that they can be used during labour.

Routine prophylaxis

Most women become anaemic in pregnancy; Ferrous Sulphate 200mg and Folic Acid 0.5mg are given each day for the prevention of anaemia (5.1.8.1).

Immunization: When the patient is seen in the first trimester, Tetanus Toxoid can be given in two doses each separated by eight weeks: 1st 16–20 weeks, 2nd 20–24 (Table 7).

5.1.3.3. High and low risk patients

From the first visit an important function of the FHW or the doctor is the recognition of patients at special risk of abnormalities of delivery or damage to the infant. These patients are called 'high risk'. This process begins when pregnancy has been confirmed and there is discussion of the place of delivery.

1. Are special tests required; e.g. blood group, glucose tolerance tests.

2. Should all pre-natal care be at a special clinic; e.g. diabetes, hypertension, Rh immunization; and is this practicable.
3. Is stay in hospital or PHC in later part of pregnancy desirable; e.g. previous Caesarean Section, high blood pressure, rheumatic heart disease.
4. Referral to hospital or PHC for delivery only. Breech, twin pregnancy, previous prolonged labour, or post partum haemorrhage.

High risk patients: Causes for referral to hospital if patient and her family agree.

1. All primigravidae less than 145 cm (4ft 10 in) in height.
2. All primigravidae with foetal heads not engaged at or near term.
3. All primigravidae with presentations other than vertex after thirty-eighth week or pregnancy.
4. All multigravidae with bad obstetric histories, e.g. repeated abortions, stillbirths, neonatal deaths.
5. All cases suspected cephalo-pelvic disproportion.
6. Persistent abnormal presentation after 34 weeks.
7. Serious complications, severe PET and eclampsia, rheumatic heart disease, severe anaemia, diabetes.
8. Antepartum haemorrhage.
9. Hydramnios or multiple pregnancy.
10. All patients who have previously had a Caesarean Section.
11. Any other women who require greater facilities than you can provide in the PHC.

Low risk patients

Women who are safe for home ante-natal care and delivery. Women with second, third and fourth pregnancies, with good obstetric and medical history: with Hb above 10g per cent. Vertex presentation, no disproportion, normal health in current pregnancy.

In first pregnancy labour is unpredictable requiring special supervision.

Primiparae suitable for home delivery:

Age 18–25 years.

Deeply engaged head (vertex presentation).

BP not more than 130/80

Partly dilated soft cervix at onset of labour.

Absence of general problems.

Attendant (doctor, nurse, dai) at home delivery must be able to cope with prolonged labour, delayed second stage, post partum haemorrhage, perineal tears, episiotomy, retained placenta, asphyxia in the baby.

5.1.3.4. Advice during pregnancy.

Pregnancy and ante-natal care is a good time for health education and the health team must have consistent, prepared, and agreed advice to give to individuals or to groups of women. Health education must be given both in the home and in the clinic. Many women are illiterate. Special material must be available as posters, flip charts, slides, exhibits, flannelgraphs (6.3).

Subjects of concern and interest are:

1. Nutrition with local recipes for protein rich foods, supplements with the cost and preparation.
2. Travel during pregnancy; rest and exercise.
3. Preparations for birth.
4. Care of baby.
5. Minor complaints during pregnancy.
6. Knowledge of and attitudes towards contraception or induced abortion.

Travel by 'bus or bullock cart should be avoided in the first three months or after the twenty-eighth week.

General topics can be introduced, environmental sanitation, immunization, infestations. For other topics see Chapter 9.

Nutrition: Childhood nutrition affects the outcome of pregnancy and nutrition during pregnancy affects the child's chances of survival.

Nutritional advice is often difficult for it may seek to alter behaviour learned in early childhood; it must also take into account foods available locally and beliefs regarding them, cooking facilities, patterns of meals etc., whether the pregnant woman is working and the work she is doing.

All advice must be practical; demonstrations must show items of food in required amounts, weights and fluid measures must be local; calories and protein values should be calculated as a base line for weights and volumes of local foods.

There are three problems, the provision of sufficient calories, sufficient protein, sufficient minerals and vitamins in an acceptable form, at a price the family can manage.

The foetus is small until the second half of pregnancy and then the women need extra food; if a reasonable daily intake is 2200–2400 calories then an increase of 300 calories a day is recommended for the last three months of pregnancy.

Many women take only two meals a day: the calories are provided by cereal, chapatties or dishes made with rice or rice flour. Vegetable proteins are cheaper, more easily obtained than animal proteins and acceptable to vegetarians. But more are required. Fortunately they are widely available from varieties of Gram or from peas, beans or ground nuts. When the patient can afford it eggs, milk and fish will provide extra protein. Protein and calorie values are given in Table 2, and the metric amounts can be readily calculated. Green vegetables ensure sufficient Carotene and Folic Acid. Folic Acid and Iron are required to prevent severe anaemia (5.1.8.1).

Most dietary restrictions practised during pregnancy do not seriously affect the nutritional state. The important thing to do is to make sure the woman has plenty ordinary foods to give sufficient protein and calories. Vitamins and minerals must come from natural sources.

Iron-rich foods are eggs, raisins, milk, green vegetables and honey. Folic acid comes from green leafy vegetables.

Calcium is particularly necessary in the last three months (1.5 g daily) and supplements may be required. Ca lactate or gluconate (0.5 g) two or three a day.

Table 2 (see also Table 5)

Values of some common foods as protein, carbohydrate, fats and calories.

For use in teaching, quantities are prepared in local measures with local costs. The quantities required for adequate nutrition can thus be demonstrated.

Foodstuff	Quantity	Protein	Carbo- hydrates	Fat	Approx. Calorie Value
Human milk	1 litre	15g	70g	40g	700
Cows milk	1 litre	35g	44g	40g	676
Buffalo milk	1 litre	43g	50g	88g	1164
Goats milk	1 litre	37g	45g	48g	660
Egg	1 medium size	7g	—	7g	91
Meat (Mutton)	60g (2oz)	11g	—	8g	116
Wheat (Whole)	100g (3½oz)	12g	70g	2g	346
Bread	1 slice	2g	15g	—	70
Maize (Corn)	100g (3½oz)	11g	62g	4g	328
Rice (Raw)	100g (3½oz)	7g	80g	0.5g	350
Bajra	100g	12g	67g	5g	361
Jowar	100g	10g	70g	3g	347
Dal	30g (1oz)	8g	16g	0.5g	100
Peas (Dry)	100g	20g	60g	—	320
Sugar	30g (1oz)	—	30g	—	120
Orange	1 medium	—	10g	—	40
Banana	1 medium	—	15g	—	60
Mango Dashari	1 medium	—	10g	—	40
Apple	1 small	—	10g	—	40
Butter	10g (1/3oz)	—	—	10g	90
Ghee	10g (1/3oz)	—	—	10g	90
Potato	100g	1.6g	23g	—	100
Ground nut	100g	25g	26g	40g	570

For practical use: 1g Protein or Carbohydrate = 4 Calories

1g Fat = 9 Calories

10 per cent Total Calories as Protein

This is because the Ca in cereal foods is not easily absorbed, and only 0.1g is got from 100ml of milk.

When the mother's diet is adequate she gains weight satisfactorily: and this is the best indication that the infant's birth weight will also be satisfactory. Special care is required if weight gain is not satisfactory.

Many mothers who become pregnant when nutrition is poor require food supplements.

For prevention and treatment of anaemia (5.1.8.1). When nutrition is poor Vitamins (as Multivite Tablets) are given as soon as pregnancy is diagnosed, one each day (Table 21.9).

5.1.3.5. Personal hygiene in pregnancy.

Care during pregnancy is also a matter for the mother herself although she requires to know what to do and what to avoid. She must co-operate with the health workers to ensure that she does not come to harm and has a good baby.

Attention must be given to:

1. Adequate fresh air and sunshine.
2. Adequate exercise.
3. Proper rest, relaxation and sleep.
4. Care of skin.
5. Regularity of bowels.
6. Care of breasts.
7. State of teeth.
8. Proper clothing.
9. Marital relationships.

1. Fresh air and sunshine.

Some time should be spent out of doors in the morning and evening.

Moderate exposure of the skin to direct sunshine is good as it encourages Vitamin D metabolism. Deprivation (as in strict purdah) is bad.

2. Walking, graduated to the stage of pregnancy, is the best type of exercise.
3. As pregnancy proceeds the mother carries more and more weight and during the day she should take frequent short rests with her feet up. During the rests she should learn to relax. She must not lift heavy weights. Eight to nine hours sleep a night is desirable. In the latter half of pregnancy the weight of the uterus can be supported on a small soft pillow.
4. A daily bath is required. Soap can be used and the skin well rubbed to encourage good circulation. Vulval toilet is important to prevent pruritus. Oil can be used if this is customary.
5. Constipation can be troublesome. Plenty of fluid and a drink of warm water on getting up, fruit and vegetables in the food will all help to keep the bowels regular. But a gentle aperient may be required (such as Senna tea). Strong aperients giving loose stools must be avoided.
6. Care of the breasts. The objectives are cleanliness and the encouragement of circulation to keep the lacteal sinuses and ducts open to allow colostrum and

5.1.3.5.

5.1.4.

5.1.4.1.

5.1.4.2.

then milk to escape freely under the pressure of secretion (Fig. 6). The mother washes the breasts twice daily, each time rubbing a little oil or lanoline into the areolus and gently moulding out the nipple and areolus from the underlying tissues so that the tips of the fingers tend to meet under the base of the nipple.

Colostrum escapes from about the 34th week and should be expressed before the nipple is washed. The brassiere should give good support without being tight.

7. If possible dental caries should be treated and teeth and gums kept clean.
8. Clothes: avoid tight garments of any sort, clothes must be clean, wear flat shoes or sandals.
9. Pregnancy should be a time of quiet and peace, free from worry. Smoking during pregnancy is bad as it affects the growth of the baby. Medicines should be taken only on advice of the doctor or health worker. The husband's attitude is important, he needs to be attentive and caring.

If there have been previous abortions, intercourse should be avoided in the second, and third months, and the time of the menstrual period throughout the pregnancy. Intercourse does not affect the foetus but is best avoided between the thirty-sixth week of pregnancy and six weeks after delivery.

5.1.4. Conduct of normal labour

5.1.4.1. Introduction

At present in rural areas most normal deliveries occur with the help of a village dai. In difficulty the FHW is usually called first. You may be called by the FHW or patient's relatives if labour is not progressing normally. You must respond but where home delivery is planned pre-natal care should be as complete as possible and carried out with the co-operation of the dais. The dais themselves should be included in a training programme and as far as possible integrated into the health team at village level caring for the mother in labour and immediately afterwards but knowing how and when to seek further help and willing to do so (9). In time the FHW will undertake an increasing proportion of deliveries (8.3.10–14).

5.1.4.2. Preparation

When delivery is to take place at home the preparation of the room is most important and the main arrangements must be made before labour begins. Details vary with locality. The house is visited well beforehand. Room, light and well ventilated, cleaned, whitewashed if walls suitable, or by wet swabbing but no dung-plastering to be done; no sweeping or dusting once labour has been started. Proper lighting is important and must be considered beforehand.

Clean the bed and arrange it in the best position for light, in some places the woman lies on the ground. If a mattress is available it must be protected by a plastic sheet or waterproof covering, old linen, newspaper or brown paper. If the mother is to lie on a bed then two tables or small benches covered with linen or paper will be necessary for bowls etc. Water must be boiled, then cooled

5.1.4.2.

and set aside in a clean covered vessel. The vessels used for water should have been boiled but if that is not possible the inside must have been washed with soap and warm water and then rinsed with boiling water.

Articles required for mother and baby are:

MOTHER

Clean newspapers
(banana leaves)
Stove or means of heating
Containers for water
Linen
Clean bed or mat with clean
old clothes for sheets

BABY

Cotton wool or pieces of clean
soft rags
Cup, spoon, feeder
Clean clothes
Soap
Oil

The home confinement pack taken by the FHW (ANM) in a prepared bag or equipment for home confinement: (7.3.3.1)

Enema tubing and funnel
Vaseline or KY jelly
Safety razor
Thermometer
Savlon lotion
Swabs
Gauze

Plastic sheets and apron
Nailbrush
Torch
Catheter (small metal)
Urine testing equipment
Spring balance

A delivery pack containing:

Two sterilised bowls
Artery forceps, two pairs
for use on cord
Scissors, two pairs sterilised
Cord ligatures (sterile)
Perineal pads and cotton swabs
Small kidney tray for placenta

Soft towel for baby
Three towels and two leggings
Suction catheter for mucus
For emergencies, two infusion sets
and 5 per cent Dextrose
(2 bottles)
Gloves (surgical, sterile)

For episiotomy when necessary (doctor's use): (6.1.2.3)

1. One 10ml syringe and local anaesthesia
2. One needle holder
3. One toothed dissecting forceps
4. Two suture needles
5. Suture material

Medicaments carried:

Tab. Codopyrine, Phenobarbitone, Sodium Amytal, Inj. Pethidine, Phenergan, Diazepam, Ergometrine (7.4.5.1).

5.1.4.3.

5.1.4.3. Intra-natal care

General principles same for delivery at home as in PHC.

First stage of labour.

The situation is assessed as soon as the woman is seen: in multigravidae delivery may be imminent and rapid but first stage may last up to 12 hours and in primigravidae up to 24 hours.

Assessment made by: Frequency and severity of pains, history of show (blood, and fluid — if membranes have ruptured).

If delivery is not imminent then full preparation is made.

1. Pubic hair shaved or clipped.
2. Lower bowel is emptied by plain water enema (to prevent second stage soiling).
3. Warm bath given after enema (feet should be properly washed), clean change of clothing.

General physical examination, pallor, oedema, BP, temperature and pulse are recorded. With aseptic precautions a vaginal examination is made to note the stage of dilation of the cervix, the level of the presenting part, presence or absence of bag of waters, cystocele or rectocele or old perineal tears. Record type of vaginal discharge, meconium staining, fresh bleeding etc. This vaginal examination gives a base line if others are necessary later.

Abdominal palpation, check presentation and position, level of presenting part and foetal heart sounds. Estimate size of baby.

Meanwhile water should be boiled and instruments sterilised, bed or place prepared.

Then specimen of urine (examined for alb. and sugar), afterwards vulva and inner aspects of thighs washed with soap and water.

If woman is in early labour she may rest or walk about; she should drink plenty of fluids and have only a light diet. Bladder kept empty by two hourly micturition and after each wash vulva and use a clean perineal pad. If the woman tends to bear down she should be told to lie on her side and take deep breaths during pains.

During first stage the following must be noted and recorded:

1. Frequency and strength of the contractions.
2. Descent of foetal part and foetal heart rate each hour.
3. Maternal pulse and temperature.
4. Presence of any vaginal discharge.

With a primigravida there is a period of 6—8 hours in which the nurse might return to her home if that is near — so long as she can be called in time — but in a multigravida the nurse must remain with the patient. Sedatives to ease pain are available but must be used with caution: mild analgesics only.

Second stage of labour.

Beginning may be difficult to identify, but type of contraction changes to bearing down.

Gaping of vulva and anus with bulging of perineum. Vaginal examination — rim of cervix not felt.

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Second stage two phases — descent lasting about thirty minutes in a primigravida but only a few minutes in a multigravida. Perineal phase, begins when head appears on vulva and lasts about same time as descent.

Management:

Listen to foetal heart with each contraction.

Watch uterine contractions; a woman pushes only when head has descended to pelvic floor.

If membranes are intact — rupture them.

If bladder is full — empty it.

Everything must be ready for the actual birth. With a multigravida the midwife will scrub and put on her apron and gloves at the end of the first stage; but in a primigravida when about 5 cm of head is visible.

Patient lies on her back and during contractions can bring her thighs up to each side of the abdomen thus increasing expulsive effort.

For delivery of the baby observe the following.

Deliver the head slowly between contractions, maintaining good flexion. Care with the head, till occiput and parietal eminences are born and maintenance of flexion will prevent perineal lacerations. Look for cord around neck and slip it over the baby's head if this can be done easily. Clean mouth and nostrils while shoulders rotate. External rotation of head indicates completion of shoulder rotation. Gently depress the head to deliver first the anterior then the posterior shoulder. Rest of body is then born — note time.

Respiratory passages cleared, eyes swabbed separately with dry sterile cloth. The cord is then tied and the baby separated; ligatures at 2.5 cm (1 inch) and 5 cm (2 inches) from umbilicus and cut between.

The baby should cry almost immediately and the lips and tongue become pink. Wrap the baby in a clean linen cloth, give to the mother or a relative or place where he is easily seen.

Third stage of labour. Two ways of management.

1. Traditional:

wait for signs of placental separation, fundus gets harder and smaller; then push separated placenta out of relaxed lower segment.

Give Methergin 0.2 mg IM.

1. Active:

give Methergin 0.2 mg IM at time of delivery of anterior shoulder. When baby is born, placenta can be delivered by controlled cord traction with the first uterine contraction which occurs in 3—4 minutes. This method reduces blood loss and is recommended if the patient is anaemic or uterine contractions have been weak during labour.

Examine the placenta and membranes after washing surface free from clots. Lay placenta flat to inspect the cotyledons. They must be complete; note presence of infarcts, any abnormality in thickness, the blood vessels or the insertion of the cord.

After third stage.

Clean perineum — look for tears; apply Tinct. Benzoin to small lacerations; clean thighs and buttocks with soap and water and dry; clean perineal pad

5.1.4.3.

5.1.5.

Check fundus to make sure it remains hard; check pulse and amount of blood loss.

Fourth stage of labour.

The two hours following labour and delivery is called the fourth stage to emphasise the importance of this period of time both to the mother and the newborn child. The FHW or birth attendant must remain in the house during this time.

Care of the mother: careful observation is required to recognise haemorrhage during this period. Every fifteen minutes record pulse and palpate uterus gently to note height and consistence, inspect pads for clots or excessive bleeding. Rise of BP may be recorded if Methergin has been administered; check BP if any rise in pulse rate. When Methergin has been given soakage should not be more than one or two pads in two hours and uterus should remain contracted and hard.

Bleeding with a hard uterus usually comes from injury to lower tract, laceration of the cervix, vagina or perineum. At end of two hours give bedpan for micturition and express clots lying in vagina by gentle pressure on uterus.

General care of the mother: soon after delivery wash perineum, buttocks, thighs and feet and put on clean perineal pads; clean sheet and covering; give mother a drink of tea or milk and get her to rest while the baby is bathed in water or rubbed with oil (detailed directions 8.3); with parents' agreement record baby's weight.

Other notes are checked and birth notification arranged. In the home the FHW or attendant is expected to help to clean up after the delivery.

Before leaving FHW should see baby suckle; check cord for bleeding; give instructions that watch should be kept for bleeding from mother and that the perineum must be kept clean.

Local customs or religious practices must be observed unless harmful. In some places the placenta is burned and in others is buried.

5.1.5. Post-natal care

Visits are made on second, sixth and fourteenth days; if necessary visits may be made between these times. The post-natal visit is at six weeks.

At visit on second day:

Note mother's general condition, pulse and temperature.

Examine pads for lochia — change of colour.

Examination of breasts and nipples.

Observe breast feeding or fluid from feeding cup.

Gentle examination for size of uterus.

Advise about need for food and for fluids — is micturition normal and painless?

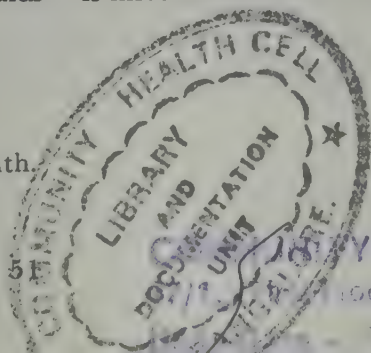
Baby:

Note passage of urine and meconium.

Observe feeding.

Condition of umbilicus.

Show how to bath and maintain warmth.



Referral to health assistant or doctor if:

1. Fever over 38°C on two consecutive days.
2. Swelling or pain near any perineal sutures.
3. Breast engorgement; unrelieved, especially if with fever or chills.
4. Persistent fresh bleeding.
5. Raised BP (140/90 or more), pulse persistently more than 100 especially with low grade fever.
6. Any other unusual symptoms — suggesting local or general infection or other complaints.

Advise for BCG before visits cease; warn about danger signs in the baby (5.2.13).

Post-partum sterilisation best done within 72 hours if previously agreed and patient has therefore been delivered at PHC. Post-partum sterilisation cannot be undertaken in patient delivered at home.

If not then arrangements for family spacing and contraception. IUD introduction or other methods, 'pill' not given while breast feeding. This is one of the most valuable of entry points for FP and must be used to full advantage.

Post-natal visit made about sixth week unless help is sought earlier. Mother seen at home or in subcentre. Enquiry made concerning appetite, bowels, pain, vaginal discharge and menses. Examine breasts.

Is mother's intake of food adequate for lactation; discuss 700 extra calories daily in terms of local foods and discourage any **harmful** food restrictions imposed by local custom or relatives. Encourage effective alternative foods.

Family planning: Another important 'entry point' for FP (see above). Arrange for post-natal check by doctor at PHC. Explain disadvantages of a short interval (less than three years) before the next pregnancy: importance of Family Planning acceptance before menstruation begins and intercourse is resumed.

At same visit see other children in family: weigh, check diet. Special care to next older siblings for any ailments and nutrition. Check immunizations.

If it is practicable after the sixth week the mother should bring the child to the 'under fives' clinic in her own village (held when health worker visits) or at the PHC if this is near enough (actual distance will vary with the terrain, climate and transport). The child's progress should be recorded on an 'under fives' chart (6.2.12.2).

In most situations although breast feeding is continued the amount the baby obtains becomes insufficient by the fourth month and additional food is required from that time (5.2). The time between four and eighteen months requires special care to make sure weight gain does not fail. At each meeting at home or in PHC or subcentre all the 'points' on the 'under fives' chart must be checked, enquiry made into mother's health and lactation, and food, check anaemia, treat any minor ailments (6.2.12.2).

At each meeting family planning or contraception is reviewed.

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- 5.1.7.
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5.1.6. Emergency delivery at home.

Ordinary births at home are conducted by the FHW (ANM) or dai. But you may be called on for assistance from any of the subcentres when either the FHW or dai finds labour is not progressing satisfactorily in one of her patients. You **must** immediately respond to such calls. You should always have transport available for emergencies. Your maternity kit should always be ready for immediate use.

Under no circumstances should you undertake a difficult delivery at the house.

On arrival you must examine the patient in detail — her general condition and that of the foetus. By careful obstetric examination and vaginal examination decide as well as you can the cause of delay or difficulty.

If you find that the delivery will be difficult, you must do everything you can to take the patient back to the PHC and deal with her there. The delay may be due to failure of the secondary forces after the head has come down to the pelvic floor. Even if there is no foetal distress it is advisable to move the patient to the PHC.

Assistance may have been sought because the placenta is retained. If there is no bleeding and the placenta has not separated move the patient to the PHC or if her general condition is not satisfactory start an intravenous drip of 5 per cent Glucose solution (which must be part of your obstetric kit) and then move her. If there is bleeding and the placenta has not separated again the patient should be taken to the PHC if necessary after an intravenous Glucose drip has been started.

You should act alone at home only if:

1. The patient is so ill she cannot be moved or the family will not allow her to be moved.
2. Help cannot be obtained by telephone.
3. The emergency is extreme.

Then if the head has come down to the pelvic floor and there is foetal distress deliver by outlet forceps. If the placenta has not separated and the patient is bleeding you must set up a Glucose drip and remove the placenta manually under heavy sedation and as quickly as possible.

For other complications or malpresentations see 5.1.7.

5.1.7. Common abnormalities of pregnancy.

Remember the objective of ante-natal care is to foresee the causes of difficulty so that harm does not come to mother or to child.

Complications or abnormalities are possible at any stage. Their effects will be minimised only by constant care. They are best considered by taking the periods of pregnancy in succession. Pregnancy can also be complicated by other illnesses.

5.1.7.1. In First Trimester.

Acute retention of urine; very distressing; avoidable. Expectant mother about 12–16 weeks. After 'difficulty' in passing urine for some days is suddenly

5.1.7.1.

unable to pass any. Pain of retention with very full bladder.

Probable cause: Retroverted uterus has become fixed in pelvis. Uterus enlarging presses on neck of bladder gradually causing complete obstruction to urinary outflow.

Treatment: Rubber catheterisation and gradual emptying of bladder. Tell patient to lie face downwards at night and when resting — this will assist anteversion. After a week or two the trouble will cease as the enlarging uterus rises clear of the pelvis and becomes anteverted.

Prevention: Particularly important in rural work when help is difficult to obtain. Emergency can be avoided if expectant mothers are taught to report any difficulties with micturition.

Haemorrhage in the First Trimester: Abortion commonest cause but vesicular mole, ectopic pregnancy and bleeding from ulceration of cervix must be considered (carcinoma of cervix complicating pregnancy).

Any vaginal bleeding in pregnancy must be regarded as serious and patient referred whenever possible to hospital.

Assessment:

- (a) Take detailed history.
- (b) Physical examination — in abdomen note any mass, tenderness, rigidity, distension, signs of fluid.
- (c) BP, pulse, haemoglobin.
- (d) Examination of cervix through speculum to rule out cervical lesions.
- (e) Gentle vaginal examination, note size and position of uterus, condition of Os, palpate gently for any tender adnexal mass in fornices.

Threatened Abortion: Slight disturbance and little bleeding. Patient not shocked. Os closed, uterus corresponds to duration of amenorrhoea, fornices free.

Treatment: Rest with sedation, Sodium Amytal 60mg 8 hourly, Phenobarbitone 30mg 8 hourly orally or Morphine 15mg IM. Save all pads to estimate further bleeding; bleeding may stop and pregnancy proceed and if so patient rests for 3 days then back to previous work after 3—4 more days (visits by FHW if possible during that week), or there may be fresh bleeding with pain and abortion becomes inevitable.

Missed Abortion: Signs of threatened abortion stop, slight spotting may continue off and on but uterus does not increase in size. Evacuation at PHC or hospital. Antibiotics.

Inevitable Abortion:

1. If bleeding is heavy at beginning or recurrent after initial slight loss; FHW must notify health assistant or doctor.
2. When products of conception are partially expelled, (this is more likely after ten weeks).
3. When Os is found open on vaginal examination.
4. Recurrent haemorrhages for three or four days.

Treatment: Do not interfere unless bleeding is severe. If it is then Methergin 0.2mg is given intramuscularly. This should reduce bleeding and may help

expulsion of contents of uterus. If pain is severe then Pethidine 100mg orally or 50mg IM.

Vaginal examination with antiseptic precautions. With open Os insert index finger gently into cavity to empty uterus; give second dose of Methergin. If referral is not possible and bleeding continues a tight vaginal pack is required; bladder is first emptied. Foot of bed raised.

In PHC uterus must be emptied either

1. By suction evacuation under sedation (6.1.6.2) (Fig.18).
2. If by Dilation and Curettage then under general anaesthesia or local paracervical block (6.1.3).

Before evacuation Methergin 0.2mg IM is given to promote contractions, diminish risk of perforation, and reduce blood loss. If bleeding has been very heavy or patient is shocked then intravenous fluid is required. This may be:

1. Blood; if relative who is suitable will act as donor — direct matching required. May be life saving.
2. Intravenous Glucose (5 per cent) Saline.
3. Plasma or expander fluid if available.

If Os is closed do not attempt to open or evacuate, but pack vagina tightly with sterile roller gauze. Inject Oxytocin 5 units every thirty minutes for four injections or put up a drip with 20 units Oxytocin in 500ml 5 per cent Glucose set at 40—50 drops a minute. Uterine contractions are stimulated helping evacuation. Remove pack after 6—8 hours; bleeding has usually stopped and products of conception may be loose in vagina or uterine cavity and Os open; if so, uterus is emptied. If necessary transfuse as above. Antibiotic cover essential after evacuation and before if possible.

Septic Abortion: The patient may not present until an abortion — complete or incomplete — has become infected. Severity of infection judged from general condition, pulse, fever, tenderness on palpation; infection may have spread through to pelvis or the uterus may have been perforated if any foreign body has been introduced and local or spreading peritonitis has followed.

Patient must be sent to hospital even if the condition appears mild.

Carcinoma of cervix: If, on vaginal examination, the bleeding appears to arise from a carcinoma of cervix then the patient must go to hospital. If bleeding is heavy then pack the vagina.

Contraception or Family Planning after Abortion.

After an abortion the FHW and doctor must again discuss family planning acceptance with the patient. Method should be choice of each couple. IUD can be inserted if there has not been any infection at time of abortion. Oral pills can be started from third or fourth day. Follow-up visit to subcentre or PHC at time of next period.

After an abortion sterilisation should not be undertaken if there is any suspicion of sepsis or if the abortion has taken place at home. The operation may be done after 6—8 weeks if the patient is well.

Ruptured ectopic pregnancy: Major surgical emergency. **Move to hospital immediately.** Only treat at PHC if removal is quite impossible. Vaginal

5.1.7.1

5.1.7.2

5.1.7.3

bleeding is rarely heavy but patient is suddenly and acutely ill, shocked, pale, anaemic with rapid thready pulse, abdomen full (distended) lower abdomen very tender, sometimes signs of fluid with thrill.

Vaginal examination: Tender swelling on one side or tender boggy in Pouch of Douglas. If uterus can be felt it is smaller than expected for the duration of the amenorrhoea. If blood can be aspirated through the posterior fornix (using a long needle) diagnosis can be confirmed.

Treatment: Immediate laparotomy and removal of ruptured tube, simultaneous transfusion from suitable related donor.

If laparotomy has been done blood in abdominal cavity can be collected in small sterile bowl or by soaking sterile swabs and squeezing into bottle containing Sodium Citrate 25ml 3.5 per cent solution. Filter through two layers of sterile gauze and return to patient intravenously — can be life saving. Can only be used within a few hours of rupture.

Vesicular mole: Suspected if uterus is larger than expected for period of amenorrhoea. If bleeding is slight — signs and symptoms suggest a mole then move patient to hospital.

If patient refuses or removal is not possible for other reasons then:

If bleeding is heavy and vesicles are being expelled, treat as for an abortion with open Os — evacuation (see above). If Os is closed, uterus over twenty weeks and bleeding is heavy then pack vagina tightly and treat as in abortion above. Inject Oxytocin 5 units every thirty minutes for 3—4 doses, or drip (see 6.1.6.2). Remove pack after 6—8 hours. In most cases Os will be open and evacuation possible. After evacuation send patient to hospital for follow-up.

5.1.7.2. Bleeding in Second Trimester 16—28 weeks

The foetus rarely survives bleeding and birth before twenty-eight weeks. Termination of pregnancy from 16—28 weeks is included in abortion — but management different as the placenta is formed and the foetus is much larger.

When bleeding is slight treat as threatened abortion. When heavy inject Oxytocin 0.5 units every thirty minutes for four doses — then await spontaneous expulsion.

If Os is tightly closed and bleeding heavy pack vagina and inject Oxytocin as before. Transfusion if possible and antibiotics.

5.1.7.3. Bleeding after 28th week (Antepartum Haemorrhage).

Two types common:

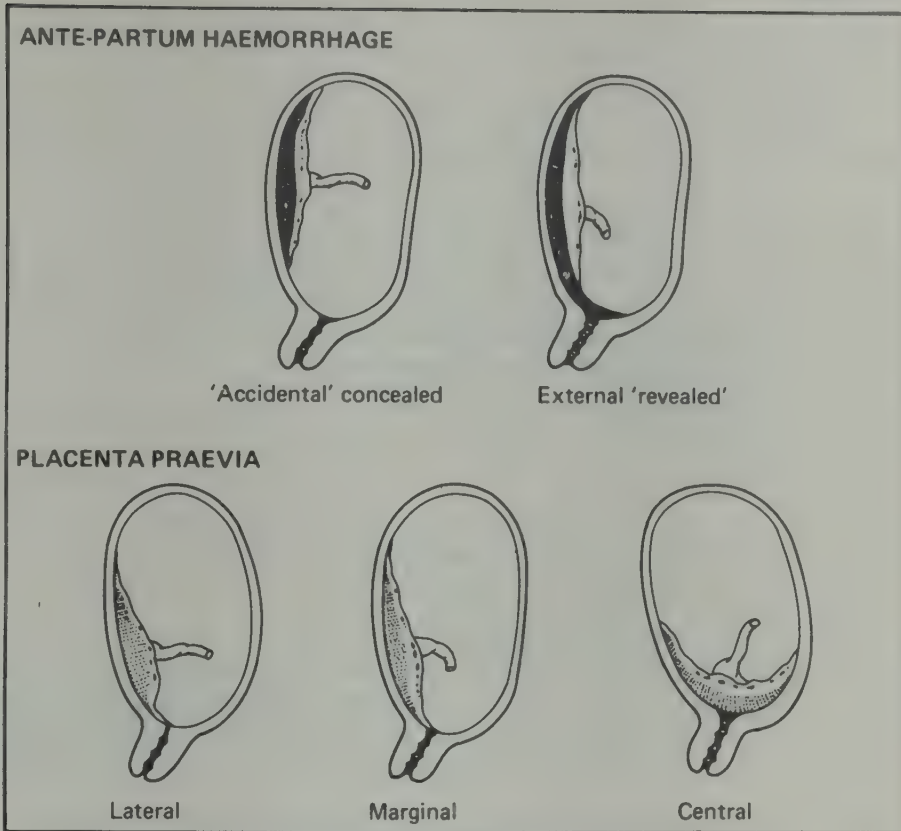
1. Accidental — premature separation of a normally placed placenta (Abruptio placentae).
2. Placenta praevia, where placenta covers or touches the internal Os.

Haemorrhage is occasionally caused by carcinoma of cervix or varices in lower genital tract.

Diagnosis of (1) or (2):

Accidental Haemorrhage usually painful — tends to continue. Uterus tender (except in slight cases) and hard on palpation. Foetal heart: rate altered or

Figure 4



absent. No placental tissue felt on PV. General condition depends on severity of haemorrhage.

Placenta Praevia: Usually painless. Stops but begins again. Uterus is soft and **not** tender. Foetal heart usually normal. Presenting part high at the pelvic brim. Placental tissue felt PV. Careless vaginal examination may cause severe bleeding. Patient usually less disturbed than in accidental but depends on severity of haemorrhage.

(1) **Premature separation of placenta.**

Mild or revealed type – bleeding external and mild pains. Foetal heart stable and patient not shocked. May become severe at any time.

Management:

1. No vaginal examination.
2. Give sedative Morphia 15mg or Pethidine 100mg and move to district hospital.
3. If not possible sedation on admission to PHC.
4. Prepare for transfusion if donor can be found.
5. If bleeding continues rupture membranes below level of presenting part.
6. Await onset of labour.

Most respond but if not and bleeding is increasing begin intravenous Oxytocin drip — $2\frac{1}{2}$ units of Oxytocin in 500ml of 5 per cent Glucose; very slow drip, 5–10 drops a minute at beginning.

Watch uterine contractions and adjust the rate to obtain optimum. Watch for PPH. Inject Methergin 0.2mg IM during delivery of shoulders. Do not do this unless you can watch the patient yourself. It is safer to ARM and await onset of labour.

Severe cases:

Mixed types (concealed and revealed) or purely concealed. In the former there is intra-uterine as well as vaginal bleeding. Patients shocked, low BP, uterus hard to touch and tender. Foetal death is common (heart not heard).

Sedate and transfer to hospital as soon as possible.

Unsuitable for PHC because:

- (a) much blood is needed.
 - (b) coagulation failure
 - (c) renal failure
- } common

Only keep in PHC if removal to hospital is impossible.

- (a) Morphia 15mg or Pethidine 100mg IM.
- (b) Find suitable donor and get blood, 500ml at least.
- (c) After general examination do PV and, irrespective of nature of cervix, induce labour by ARM and await results. Give blood or if not available 5 per cent Glucose. Await active labour within 8/10 hours. After delivery be prepared to treat post-partum haemorrhage. Give Methergin 0.2mg IM when shoulders delivered.

Sometimes labour does not begin after induction and Caesarean Section is the only treatment — another reason for doing everything possible to get the patient into hospital.

Post-partum haemorrhage due to atonic uterus or coagulation failure is common and serious. At PHC almost impossible to get enough blood.

Maternal and foetal mortality is high unless in hospital.

(2) Placenta Praevia.

Painless, intermittent bleeding, sudden onset and cessation but repeated at intervals during last trimester of pregnancy (usually after thirty weeks).

Two types:

1. central, covering whole of Os, can be felt on PV.
2. incomplete (marginal or lateral), felt on one side of Os.

If Os is open, bag of membranes can be felt.

Diagnosis: History, general condition, abdominal palpation and relation of presenting part to pelvic brim. PV if necessary but best avoided.

Management: As soon as condition is suspected patient should be moved to hospital. When bleeding starts before thirty-eighth week, and patient must be treated in PHC, sedate with Morphia 15mg IM and watch BP and pulse. Get blood ready, if possible from suitable family donor. If bleeding stops keep patient at rest for 3–4 days then move her to hospital. If bleeding increases try to get blood. Do gentle PV.

5.1.7.3.

5.1.7.4.

If marginal — rupture membranes below presenting part and begin Oxytocin drip to induce labour (if you can give patient full attention). When pains start and descent begins bleeding is controlled — spontaneous vaginal delivery often results.

Care as for PPH and give Methergin 0.2mg IM as shoulders are delivered.

Complete Placenta Praevia, very serious, best treated by Caesarean Section in hospital. If at PHC and as extreme emergency, classical Caesarean is best (6.1.2.8). If patient is a multigravida sterilise at the same time.

5.1.7.4. Toxaemia and eclampsia: management in home and PHC

Pre-eclampsic toxaemia (PET). PET cannot be prevented but can be minimised. Most significant sign sudden increase in weight after twenty-eight weeks (1 kg or more in a week). Patients must be weighed regularly.

Mild cases: Symptoms and signs.

1. Swelling of legs, may extend above the waist.
2. Increase in BP 130/90 — 150/100 mm Hg. Emphasis on diastolic pressure.
3. Albumen in urine (trace or one plus).

Any two of above are diagnostic: in mild cases symptoms absent. Any patient found at home or in subcentre should be sent to PHC to see doctor, but can be managed at home if necessary.

Home Management:

1. Complete rest in bed for seven days.
2. No extra salt, no fatty food.
3. Do not restrict fluids.
4. FHW must visit daily, check BP, examine urine.
5. Phenobarbitone 30 mg twice daily by mouth, Hydrochlorothiazide 50 mg daily as diuretic.

Most respond in 4—5 days. If signs have gone woman can resume ordinary life after one week but requires frequent checks. If recurrence, woman should come into PHC otherwise pregnancy allowed to continue to spontaneous labour. If no recurrence prognosis is good but risk of bleeding is present until delivery.

Severe cases: (threatened eclampsia).

Signs: BP 150/100, severe albuminuria, generalised oedema.

Symptoms: Headache, visual disturbances, vomiting.

Management: **Send to hospital.** If not possible keep in PHC. Give sedative, Phenobarbitone 300mg IM or Pethidine 100 mg IM and if possible move as soon as sedation has acted. If not available then Morphine 15mg to severe cases and 30mg to those threatening eclampsia.

If kept in PHC

Treatment:

1. Complete rest, light liquid diet.
2. BP recorded at least four times daily.
3. Twenty-four hour urinary output measured.
4. Urine tested for protein each day.

Medical:

1. Sedation. Phenobarbitone orally 60mg 8 hourly. If eclampsia threatens Phenobarbitone 300mg IM 8 hourly or Pethidine 100mg IM followed by 50mg IM 8 hourly. If these not available give Morphine 30mg IM, repeating 15mg 8 hourly — not more than 90mg in 24 hours.
2. If BP continues above 160mm diastolic after 48 hours use hypotensive drugs, Chlorpromazine, Reserpine — any can be used but all of limited value.
3. Hydrochlorothiazide 50mg 8 hourly or Frusemide 40mg a day by mouth for a week promotes diuresis.
4. If vomiting 20 per cent Dextrose 500ml by drip. Not more than 1,000ml in twenty-four hours.
5. Do not interfere with pregnancy, persist with medical management as long as possible.
6. Termination, to prevent eclampsia: if condition gets worse and signs increase, e.g. BP uncontrolled, increasing albuminuria and diminishing output.

Surgical: Before termination try again to move patient to hospital. Induction by low amniotomy, ARM. Do PV with antiseptic precautions rupturing membranes below presenting part with a stilette or long artery forceps, let out as much fluid as possible.

If cervix is open, effaced and vertex descending the response will be satisfactory. If cervix is closed and long, induction will be prolonged — bad for foetus.

Alternative is Caesarean Section — avoid at PHC. Vaginal delivery is safer for the mother — this is first consideration. Give prophylactic antibiotics. Intra-uterine death of foetus frequent, then patient improves. If foetus dies await onset of spontaneous labour.

Management of labour:

When pains well established give Pethidine 100mg IM and repeat if necessary in 50mg doses 6–8 hourly.

Progress of labour watched by abdominal palpation. ARM when vertex has descended — it quickens labour. When vertex has reached the perineum deliver by outlet forceps under local or pudendal block or vacuum extraction. No Oxytocics in third stage unless PPH.

Once delivery is over, improvement is rapid but fits are possible for forty-eight hours afterwards.

Patients with hypertension from other causes should be treated along the same lines.

Every effort must be made to move cases of severe PET to hospital.

Eclampsia (Toxaemia with convulsions). High maternal and foetal mortality.

Averted by early recognition of PET and treatment (5.1.7.4).

Ante-partum eclampsia.

Move patient to hospital — if not possible, treat at PHC. Constant supervision necessary. Airway put into mouth to prevent injury during a fit — changed every six hours. Oxygen and suction machine available or mucus catheter.

Sedation: Give Pethidine 100mg and Chlorpromazine 25mg in 20ml of 5 per cent Glucose intravenously with Chlorpromazine 50mg and Promethazine 25mg intramuscularly.

Continued sedation: After the above intravenous injections set up IV drip with Pethidine 200mg in 20 per cent Dextrose 500ml, drip 20–30 drops a minute. Increase rate if patient is restless, reduce if quiet. When finished give further 20 per cent Dextrose 500ml slowly. Maximum 1,000ml of 20 per cent Dextrose and Pethidine 300mg in twenty-four hours.

After the initial sedation give Promethazine Hydrochloride 25mg and after another four hours Chlorpromazine 50mg intramuscularly and continue alternately for 24–48 hours depending upon response, i.e. :

i.e. 0 + 4 hours — Promethazine 25mg IM,
 0 + 8 hours — Chlorpromazine 50mg IM,
 0 + 12 hours— Promethazine 25mg IM,
 0 + 16 hours— Chlorpromazine 50mg IM,
 0 + 20 hours— Promethazine 25mg IM,
 0 + 24 hours— Chlorpromazine 50mg IM.

If convulsions are controlled at the end of twenty-four hours the interval may be increased to 6 hourly. If not continue for forty-eight hours with 4 hourly alternating injections.

Do not interfere with pregnancy; if labour begins allow it to continue spontaneously.

When above sedatives are not available, Phenobarbitone 300mg IM 4–6 hourly or Morphia 30mg IM 6 hourly to a maximum of 120mg in twenty-four hours. Magnesium Sulphate 10ml of 25 per cent solution IV or IM repeated 4 hourly is useful. Test knee jerks before each injection and if absent do not inject the drug. Give 20 per cent Glucose 1,000ml maximum as IV drip in twenty-four hours.

If convulsions continue despite this sedation, induction by ARM is necessary (but prognosis is bad). Get patient to hospital; only induce at PHC if presentation is normal. Make vaginal examination gently and rupture membranes low down in vertex. Manage labour and puerperium as in PET.

If presentation is abnormal do not induce but continue with the sedation. The only alternative is Caesarean Section and this must be avoided at the PHC.

Intra-partum eclampsia.

Sedate patient. Allow labour to proceed normally. When head is well down on the perineum help with outlet forceps. After delivery continue sedation for twenty-four hours to prevent further convulsions.

Post-partum eclampsia is treated as above.

Complications:

(a) Renal failure	}	all with high mortality
(b) Hyperpyrexia		
(c) Pulmonary oedema		
(d) Cerebral haemorrhage		

Foetal prognosis is poor in eclampsia generally; if born alive the infants are often premature.

Always in eclampsia try to get the patient into district hospital when sedated. Always send note regarding type, time and amount of sedation given.

5.1.8.

5.1.8.1.

5.1.8.2.

5.1.8. Common illnesses of women

5.1.8.1. Anaemia.

For prevention (5.1.3.2). When you suspect anaemia do haemoglobin estimation. If Hb < 10.5g per cent stools examined for ova. If ankylostoma is found Alcopar 5g repeated if necessary. For anaemia down to 8g per cent give Ferrous Iron 200mg 8 hourly with Folic Acid 0.5mg daily. If Hb < 8g per cent and patient cannot take oral Iron then intramuscular injection — give Iron 250mg for each gram below 14g per cent, give Iron Dextran 50mg (1ml) first day then 100mg rising to 250mg twice weekly until full dose has been given.

If this cannot be done send patient to hospital.

Very severe anaemia Hb < 5g may give rise to congestive heart failure. Prognosis poor. Hospital if possible. If not PHC and treat as heart failure, diuretics and digitalis and also give Iron intramuscularly, Folic Acid by mouth. Transfusion is dangerous except by exchange technique.

Do not interfere with the pregnancy. Premature labour is common. Patients with anaemia tend to have a quick labour and to bleed after delivery. Unless congestive failure is present give Methergin 0.2mg IM as shoulders are delivered. This stimulates uterine contractions reducing the duration of stage three and the risk of haemorrhage. After delivery infection is more common in anaemic persons. Infants tend to low birth weight and high peri-natal mortality.

5.1.8.2. Urinary tract infections ('Pyelo-nephritis' or 'cystitis').

Infection with *B.Coli*. Very common in pregnancy.

Acute:

High fever — shivering, rigors simulating Malaria. Frequent micturition, painful, burning sensation.

Chronic:

May only have a little local discomfort or simply does not feel well.

Diagnosis: Can only be made after microscopic examination of urine, fresh, mid-stream specimen more than 6 cells an HP field. If possible specimen should be cultured but only if it can be plated within an hour of collection.

Treatment: Most respond to Sulphonamide by mouth with plenty of water to drink. If Sulphamezathine 2g for initial dose and 1g thereafter 8 hourly. Treat until urine has been clear for three weeks. If no response Tetracycline is the next choice, 250mg 8 hourly for 5—7 days. In resistant cases Furadantin 200mg orally a day for seven days is useful or Chloramphenicol may be given, for 7 days only, in the same dosage as Tetracycline.

Recurrence is possible and must be treated. If haematuria also think of stone; especially if pain suggests renal colic or basal cystitis.

If painless pyuria and haematuria occur suspect Tuberculosis. Do not interfere with pregnancy; increased incidence of prematurity.

5.1.8.3

5.1.8.4

5.1.8.5

5.1.8.6

5.1.8.3. Heart disease in pregnancy.

Congenital or acquired lesions of the heart sometimes complicate pregnancy. If diagnosed during ante-natal care, refer the woman to hospital. If not possible or the patient is unwilling to go management depends on the functional grading of the heart disease.

Grades I and II can be treated as out-patients. Tell the patient: to limit her activities; rest as much as possible and report immediately if she becomes breathless on effort or at rest, or if she develops cough. See these patients yourself every fortnight and, if symptoms of failure are present, admit PHC for treatment.

Congestive failure most likely between 30 and 34 weeks. Therefore try to admit to PHC at 30 weeks. If not possible then ante-natal care is necessary every week and hospitalisation is **obligatory** at 36 weeks. Do not interfere with pregnancy.

Most patients have a quick spontaneous labour. During the first stage patient should be at rest in bed; give Pethidine 100mg or Morphia 15mg. Dyspnoea needs oxygen. When head is on the perineum, deliver with outlet forceps. No Oxytocics in the third stage unless PPH. Watch for cardiac decompensation during labour and soon after. Be ready to treat heart failure with sedation, oxygen, digitalis.

Grades III and IV — poor prognosis. Treat heart failure do not interfere with pregnancy. Labour increases risk considerably. Watch carefully in the puerperium not only for signs of failure but for bacterial endocarditis, embolism and infection. In PHC after delivery give broad spectrum antibiotics routinely. **Make every effort to get these patients to hospital.**

5.1.8.4. Pulmonary Tuberculosis and pregnancy.

Specific antimicrobial therapy — INH and PAS — should be started and continued as the pregnancy progresses. In the early weeks tuberculosis itself is not a reason for termination. Refer to hospital.

5.1.8.5. Diabetes in pregnancy.

Always refer to hospital as control by blood sugar is required. Major complications likely to occur if not controlled.

5.1.8.6. Other conditions.

Acute infectious disease, gastro-intestinal infections, infective hepatitis, etc., can all occur in pregnancy; when they do treat them as in the non-pregnant patient. Malaria is again becoming frequent and must be treated. Antimalarial drugs do not interfere with pregnancy — but malaria does cause abortion or premature labour.

5.1.9.

5.1.9.1.

5.1.9. Management of common malpresentations

Common cause prolonged labour. Most self-correcting by the thirty-fourth week. If later cause must be sought. Many caused by contracted pelvis; multiple pregnancy; foetal abnormalities; tumours of uterus or adnexa; grand multiparity. But a large number without these causes.

If tumours, contracted pelvis or foetal abnormalities are found, send to hospital.

In other cases no treatment until after thirty-fourth week.

Management after thirty-fourth week:

Refer all primigravidae and multigravidae with bad obstetrical histories to hospital.

In a multigravida with good history if shoulder presents attempt correction by external cephalic version. If not successful to hospital.

If breech in multigravida with good history and average size baby — version not obligatory.

Face presentations often diagnosed only in labour — if recognised early send to hospital.

In a primigravida with any malpresentation assess capacity of pelvis by careful vaginal examination if it is not possible to send the patient to hospital.

Management in labour:

Women who go into labour at home and have a malpresentation may not call the FHW or come into the PHC until labour is advanced.

5.1.9.1. Occipito-posterior position

Persistent, occipito posterior position of vertex one of the commonest causes of delay in labour; one of the causes of non-engagement of the vertex.

Often diagnosed by abdominal palpation; baby's back indistinctly felt in flank, limbs prominent and easily felt, foetal heart further from midline than in anterior presentation.

On PV examination during labour, after cervix has begun to dilate, the anterior fontanelle will be felt at the anterior end of one of the two oblique diameters and the posterior near the opposite sacro-iliac joint. Later the sagittal suture may be felt in the transverse diameter; if this position still obtains after full cervical dilatation and 30—60 minutes of strong uterine contractions transverse arrest can be said to have occurred.

In most cases given enough time the occiput rotates to the front and, with an average baby, adequate pelvis and good contractions, vaginal delivery continues. Sometimes the delivery occurs as occipito posterior.

Management: Allow plenty of time. In the first stage give Pethidine 100mg. Judge progress by abdominal palpation.

When membranes rupture do PV to determine position, level of vertex and degree of dilation. Record foetal heart regularly. With good uterine action spontaneous rotation and delivery can be expected — if delay on perineum help out with forceps.

5.1.9.1.

5.1.9.2.

If no progress despite pains for 1–2 hours in second stage do PV. Frequently the occiput will be incompletely rotated and head stuck at or above the ischial spine after full dilation. If there are any signs of foetal distress the rotation and delivery must be assisted. Vacuum extraction is then useful. It causes forward rotation of occiput, the head comes lower and delivery can be completed. If the vacuum extractor slips and the occiput has come forward delivery can be completed by outlet forceps. If vacuum extraction is not available give as much time as possible and help delivery by using axis traction forceps.

Failure of anterior rotation may be due to weak uterine action and then an Oxytocin drip 2½ units Oxytocin in 500ml of 5 per cent Glucose may be given to stimulate uterine action. Before giving this treatment **all disproportion (cephalo-pelvic) or other obstruction to delivery must be eliminated** and you must be able to give the patient your full attention. With good pains rotation and delivery should occur but outlet forceps may be necessary.

The patient may not be brought into the PHC or help summoned until she has been in labour many hours: foetal heart may or may not be heard; PV reveals vertex jammed in pelvis with a large caput. Cervix nearly always fully dilated.

1. If foetal heart is not heard and mother satisfactory — leave and give time for head to descend, if **maternal distress** apply forceps and deliver (vacuum not suitable because of caput). If great difficulty then craniotomy and delivery.
2. If foetal heart audible — prognosis for baby still poor — but give time unless forceps delivery is thought possible (if you have had experience of manual rotation, forceps rotation or Kielland's forceps).

If forceps delivery is attempted do not exert continuous strong traction except for short periods. If the foetal heart becomes inaudible then craniotomy is justified to save the mother (6.1.2.9).

'Shock' may follow difficult vaginal delivery (5.1.12.1).

5.1.9.2. Breech presentation.

1. Whenever possible send to hospital all breech presentations first seen **after labour has started**.
2. Send all primigravidae and multigravidae with a bad obstetrical history to hospital.
3. If not possible, estimate size of baby, and make PV to assess capacity of pelvis; presentation — extended breech or full breech; if cord is prolapsed or presenting; level of breech in relation to pelvis; degree of dilation of the cervix.
4. If size of baby is estimated over 3½kg (7½lb), if pelvic contraction is suspected try again to get patient into hospital: Caesarean Section is best hope for foetus.
5. If baby average size and pelvic capacity is adequate await vaginal delivery — once this decision is taken get everything ready to treat asphyxia in the newborn (6.2.10.3).
6. Extended breech has better prognosis. If no cord presentation or prolapse patient should continue in labour.

5.1.9.2.

5.1.9.3.

Sedation with Pethidine 100mg IM is helpful. Do not interfere actively unless indicated. Watch foetal heart. Assist breech at birth.

If primigravida then episiotomy is required (6.1.2.3). Assist delivery of shoulders and head. Treat asphyxia if necessary. If there is difficulty in delivering the after-coming head and cord pulsations are absent — then craniotomy to complete delivery. Manage third stage as usual but do not give Methergin before complete delivery of the foetus.

Do full breech extraction under anaesthesia only if foetal distress is suspected and there is no progress although full dilation with good uterine action has been present for two hours. Prognosis for foetus is bad. With cord prolapse, strong pulsation and incomplete dilation, Caesarean Section is required to save the child. Alternative management would be anaesthesia, bring down a foot and allow labour to continue. If cord is not pulsating let labour take its course.

5.1.9.3. Twin pregnancy.

Send all cases of twin pregnancy, even if only suspected, to hospital. Suspect twins when

- (a) the height of the fundus is greater than the period of amenorrhoea warrants.
- (b) when there is hydramnios.
- (c) when two foetal heads are palpated.
- (d) when two foetal hearts differing by ten beats at least are heard by two persons auscultating at the same time in two places.

Confirmation is by x-ray. PET, PPH and other complications are more common. Babies being small and premature labour more common, peri-natal mortality is high especially for second twin.

Management in labour.

Again try to get patient to hospital, if not:

1. Allow labour to proceed; Pethidine 100mg IM is useful when labour is well established.
2. With vertex presenting — this is the most common — labour progresses normally and the first baby is usually born without much difficulty. Occasionally help with outlet forceps may be necessary. Do not forget to ligate cord at both ends.
3. After the birth of the first child palpate abdominally to find out the position of the second child: vertex commonest occasionally breech and at times shoulder. If shoulder, do external version and convert to a vertex presentation. If you succeed, rupture the membranes artificially and allow labour to proceed.
4. If unsuccessful then you are committed to deliver by internal podalic version and extraction (6.1.2.7).
5. When vertex, after 15 minutes to half an hour if necessary rupture the membranes artificially.
6. Leave labour to end spontaneously. Help out with outlet forceps if foetal distress or prolonged second stage due to failure of secondary forces. Be prepared to treat PPH.

5.1.9.4

5.1.9.5

5.1.9.6

5.1.10

5.1.9.4. Oblique lie — Shoulder presentation — Arm prolapse.

All are very difficult situations requiring specialist care in hospital. Foetal mortality high, rupture of uterus common, maternal death frequent.

Treatment.

Internal Podalic Version and extraction requires special training. If the uterus is tonically contracted with stretched lower segment (rupture is common) and rapid maternal pulse and falling foetal heart internal version is contra-indicated.

If treatment **must** be undertaken in the PHC then **Classical** Caesarean Section might be life saving. One other treatment is possible if you have the expertise — vaginal delivery by decapitation or spondylotomy.

After classical caesarean section in a multigravida, tubal sterilisation is required. Antibiotic required as risk of infection is high.

Treatment for shock required (5.1.12.1).

5.1.9.5. Face presentation.

1. All primigravidae and all multigravidae with bad obstetrical histories moved to hospital whenever possible.
2. If not possible, routine examination and PV to judge pelvic capacity, position of face and its level, and degree of dilatation of Os.
3. If pelvic contraction is suspected caesarean section indicated.
4. If pelvis is adequate and chin is posterior and at high level caesarean section necessary to save baby.
5. In a primigravida with adequate pelvis or a multigravida with good history, if chin is **anterior** vaginal delivery should be awaited, it may be necessary to help out with outlet forceps.

5.1.9.6. Mento-Posterior position.

Send to hospital if possible. With an adequate pelvis, average foetus and good uterine action delivery as Mento-anterior occurs per vagina. If the chin does not rotate anterior spontaneous vaginal delivery is impossible. If no progress is made after full cervical dilation and good uterine action, and chin remains unrotated or has only partially rotated with face still high — caesarean section is indicated. Difficult vaginal delivery is often associated with foetal mortality and severe maternal trauma.

If in PHC then classical caesarean section (lower segment if you are trained). Tubal sterilisation in multigravidae afterwards.

5.1.10. Complications of Third Stage of labour.

Be very careful in management of the third stage of labour. Normal placental separation is manifested by a firmly contracting rising fundus and the umbilical cord becomes longer. If bladder is empty there is a visible and palpable prominence above the symphysis and slight gush of blood from the vagina. Once this is seen the placenta is expressed. **Do not pull on cord, knead or press the fundus** until these signs are apparent. Separation is usual in 10—15 minutes of delivery

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and blood loss is normal. If heavy bleeding occurs at **any time** before separation, remove the placenta manually. If patient is shocked without bleeding treat shock. Do not remove until condition improves unless bleeding occurs.

Placenta must be examined and seen to be complete. Retention of fragments is a cause of PPH.

5.1.10.1. Retained placenta.

Retained placenta if not expelled $\frac{1}{2}$ –1 hour after delivery. Retention may be due to poor or absent uterine contractions or because the placenta is adherent. Bleeding may be heavy; shock can occur even without bleeding.

Management.

In absence of bleeding watch patient carefully. Note BP and pulse. If signs of separation are seen then express. If not massage the uterus, if it does not contract well inject Methergin 0.2mg IM. Watch blood loss and do nothing further. If no signs of separation after another hour manual removal is required. During waiting get blood donor. With aseptic precaution and light general anaesthesia remove placenta.

Before introducing your hand into the uterus give Methergin 0.2mg IM. Keep fundus contracted and steady with external hand. Remove placenta in one piece and inspect. If large pieces are missing reintroduce your hand and remove what is left. Haemorrhage might need treatment. The placenta must be removed despite bleeding. Give antibiotics after manual removal (6.1.2.10).

Rarely the placenta is too adherent to remove. Then if possible give transfusion and move patient to hospital.

5.1.10.2. Post Partum Haemorrhage

Haemorrhage within twenty-four hours after delivery.

1. Bleeding due to atonic uterus usually sudden and massive with severe collapse. Uterus soft – serious condition.
2. Bleeding from injury: Fundus well contracted. Examine the perineum for lacerations or bleeding episiotomy; with speculum for cervical or vaginal tears – suture as required.

Prevention: More likely to happen if hydramnios; multiple pregnancy; antepartum haemorrhage; excessive analgesia or general anaesthesia; traumatic delivery. In above situations give 0.2mg Methergin as shoulders are delivered.

Curative: After expulsion of placenta manage atonic bleeding thus:

1. Give Oxytocin 5 units intramuscularly and also Methergin 0.2mg IM.
2. Raise and massage uterus to make it contract – do not let it fall back – express all clots.
3. Give intravenous drip – Oxytocin 20 units in 500ml of 5 per cent Glucose – run at a rate which allows the uterus to stay contracted. Collect blood from relative for transfusion.

If patient has been admitted with this condition and the placenta has been expelled, the possibility of retained portions should be kept in mind. If Oxytocics do not control bleeding and Os is open explore the uterine cavity with

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two fingers gently feeling for and removing any retained fragments. Anaesthetic is not necessary. Most cases respond but if heavy bleeding continues bimanual compression may control bleeding for 10–15 minutes. One fist inside the vagina against the posterior fornix and the external hand over the fundus of the uterus; afterwards vaginal pack and a pad behind the ante-verted uterus and a tight abdominal binder. Make every effort to give life saving blood transfusion.

5.1.11. Complications of the Puerperium.

5.1.11.1. Puerperal Infection.

Common risk with (a) Anaemia; (b) Traumatic delivery; (c) Intra-uterine manipulation; (d) Prolonged labour; (e) Antepartum or post-partum haemorrhage.

Prevention: By good management of pregnancy and labour.

Signs: Fever and offensive lochia. (Fever also from other causes; e.g. malaria, urinary infection, typhoid etc.).

Examination: Physical examination. Tenderness over uterus or abdomen.

Examine lochia and perineum — if an episiotomy wound is inflamed remove sutures. Take blood smear for malaria and examine urine for pus. Examine breasts for mastitis. If puerperal fever is suspected — give broad spectrum antibiotics.

External vulval douches useful. Do not give vaginal douches. Milder infections confined to the genital tract and respond well, but spread causes pelvic or general peritonitis with abdominal pain, tenderness and distension. Patient very ill, give intravenous fluids and antibiotics. Infection may localise and abscesses may require drainage. Move patient to hospital.

5.1.11.2. Thrombophlebitis.

A week or ten days after delivery a patient, especially if anaemic, may have a thrombosis in the femoral vein due to subacute infection. Affected leg is pale, swollen and tender: movement of the foot causes pain in the calf.

Treatment: Rest, raise foot, sedation for pain and antibiotics assuming infective cause.

5.1.11.3. Acute Mastitis and Breast Abscess.

1. For prevention see 5.1.3.5.

2. Breast engorgement, occurs on the third–fifth day as milk secretion begins. In women, especially primigravidae, whose lacteal ducts and sinuses have not been opened by massage during ante-natal care. Because milk cannot escape and ease the tension caused by rapid secretion the breasts become hard, heavy, tender and the tissues oedematous. The areolus is stretched by underlying pressure so that the baby is unable to get the nipple into its mouth. (Fig.6). Treatment is physical support to the breasts, a gentle analgesic, to apply cold compresses and to try to relieve tension by gentle expression of milk. Fever means infection: antibiotic required. A single dose of Stilboestrol 10mg will depress secretion until the milk is flowing more freely and the tension within the breast is diminished (5.2.4).

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Engorgement usually eases in 24–48 hours but the nipples may have become painful and the mother afraid of feeding so that further secretion of milk is inhibited.

3. Cracked nipples: very painful, causing inhibition of secretion; occurs when a baby bites on a nipple not in correct suckling position (5.2.4) (Fig. 6), when the baby is put to 'engorged overfilled breasts' (see 2 above). If 'cracks' do occur the nipple must be rested; hand express milk and feed baby until suckling can occur without pain. Ointments may be used but time is necessary. 'Cracking' is often followed by infection.

Retracted or Depressed nipples: see 5.1.3.5 Care of breasts.

If the 'nipple' is retracted rather than bound down this may not be correctable by the technique described in 5.1.3.5. But if a flow of 'milk' can be obtained during the ante-natal period the infant may be able to suckle with a breast shield from the beginning of lactation. Otherwise feeding with expressed milk is necessary and is difficult to maintain. Worse still, artificial feeds may be required.

Breast Infection — Abscess.

Signs usually begin in second and third week after delivery; may follow engorgement and painful nipples.

Onset, fever with rigor and tender hard reddened area in one or more quadrants of the breast. Early recognition most important since early effective treatment may prevent abscess formation.

Infection nearly always staphylococcal. Should respond to prompt and full antibiotic therapy (Penicillin or Erythromycin); drug given will depend on what is available and on knowledge of the sensitivities of local organisms. Breast must be supported. If delay in treatment abscess formation may result. Surgical opening and adequate drainage is required.

5.1.12. Sudden Obstetrical Emergencies.

Sudden emergencies can occur in the home or in the PHC requiring immediate life-saving treatment before patient can be moved.

5.1.12.1. Shock and Collapse.

Risk greater in anaemic patients; after sudden severe blood loss (external or internal); with incomplete abortion; ruptured ectopic pregnancy; placenta praevia; accidental haemorrhage; ruptured uterus; post partum haemorrhage; amniotic fluid embolism.

Sometimes shock occurs in severe infection after septic abortion or prolonged labour.

Signs: Woman pale and cold, pulse rapid, poor volume. Low or even unrecordable BP.

Immediate treatment:

Oxygen and mask.

Head low and body warm.

Intravenous Glucose or Plasma.

Intravenous Corticosteroids (Hydrocortisone 200mg).

Sedation if restless (usually anoxic) Morphine 10mg or Diazepam 5mg IM.

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After improvement, keep drip going and move as gently as possible continuing oxygen.

5.1.12.2. Hyperpyrexia (with or without delirium).

Associated with puerperal or post-abortion sepsis; acute infection (e.g. pyelitis); eclampsia. More common in summer and with dehydration. Temperatures over 41°C (106°F) can rapidly cause irreversible brain damage.

Temperature controlled by hydrotherapy; sponge with water at room temperature, not cold water, cover with wet sheets, use ice if available. Record and chart rectal temperature. Chlorpromazine (30mg) and Phenergan (25mg) together are good: give slowly, intravenously if collapsed or intramuscularly if pulse good.

Give oxygen if circulatory failure, transfer to hospital after temperature has fallen below 40°C (104°F).

5.1.12.3. Convulsions and Coma

Causes during pregnancy, eclampsia, epilepsy and uraemia. After delivery, tetanus and cerebral venous thrombosis in second week. Think also of epilepsy and meningitis.

Immediate measures: Protection from injury and tongue biting. Keep patient on side. Aspiration as necessary. Airway, hold up angle of jaw. Sedation with Chlorpromazine 50mg and Phenergan 25mg or Morphine 15mg with Atropine 0.5mg intramuscularly. Make record of dosage. Set up intravenous drip Glucose 5 per cent — move patient to hospital as soon as possible.

5.1.13. Complications found at post-natal examination.

Post-natal visit: Healthy patients are seen at six weeks; child also should be brought. Occasion utilised to discuss family planning, instruct further with regard to diet and lactation and for thorough physical examination.

Common complications found are cervicitis; badly healed perineal lacerations or episiotomy wounds; pelvic floor relaxation of different degree; inflammatory lesions of the pelvic adnexa. Latter need adequate rest in bed and antibiotics. Backache is common, due to cervicitis, pelvic inflammation and functional muscular inefficiency. When in doubt and you have no facilities to treat the pathological lesion send patient to hospital.

5.1.14. Family Planning and Spacing.

5.1.14.1. Entry Points and Counselling.

You, with other members of the health team, have a responsibility to guard the health of mothers and children by active measures to educate parents so that they become willing to space children and limit family size. You and each of the other health workers have many opportunities to discuss and to offer advice and service.

Entry points for such advice are to be found on many occasions. See 3.4.3 for those particularly the concern of the FHW, but also:

During any illness of a child or mother.

At immunization procedures.

In connection with abortion or post-abortion advice.

If pregnancy occurs before the previous baby is weaned.

With social and economic problems in the family.

Advice deals with the postponement of pregnancy, the legal termination of pregnancy under certain conditions and sterilisation.

These questions must also be discussed with a concern for the realities of the rural situation and be part of the continuous cycle of maternal and child care (3.4.3).

All parents have the right to choose the size of their family. At the same time they need to be informed that size must be limited if health is to be improved. This can only be done by avoiding unplanned or unwanted pregnancies. Careful, sensitive and informed discussion is necessary, particularly with newly married couples. You must have knowledge of people as well as of techniques. Rapport is required not only with the couple concerned but with the wider family, the community and its leaders. The role of your health team is to encourage people to accept a planned family as a basic requirement for family health. The planning must be seen as only one of many health measures designed to benefit the family as a whole. Health workers must be aware of local customs and habits, special taboos and be able to answer shrewd questions and criticisms. Advice must take into consideration degree of motivation, socio-educational attainments, home conditions especially privacy and problems relating to storage of contraceptives, attitudes of family and relatives.

Failure of contraception and unwanted pregnancies must be identified early for referral for termination of pregnancy if that is what the parents wish (5.1.14.3 and 6.1.6.2).

Once understanding has been obtained and the couple accept the need for this responsible attitude to family, then the next step is the choice of a suitable method. The health workers must be prepared to advise in a positive way to the advantage of each couple. If the couple choose the Nirodh, the diaphragm or contraceptive cream or tablets then they need not necessarily attend the clinic. If the woman chooses the IUCD or a contraceptive pill or there is the question of sterilisation of either partner by operation then a visit to the PHC is required (6.1.6.3).

5.1.14.2. Methods suitable for the Primary Health Centre — advice, supply or service (6.1.6).

1. Conventional contraceptives — only condom (Nirodh) is advocated.
2. Intra-uterine device.
3. Oral contraceptives.
4. Post-Partum sterilisations.
5. Vasectomy.

In addition to these methods there are 'coitus interruptus' and the natural or 'safe period' method. 'Coitus interruptus' is widely known and widely practised. Many people are confident of success with the method and it is better than none.

The 'safe period' method 'natural method' is based upon the knowledge that conception can be prevented by avoiding coitus in the midcycle, i.e. for 8—9 days in the periovulatory period. The 'safe' or infertile period can be determined from the dates of the menstrual period or using a temperature record of cervical mucus, breast tenderness, etc. In women with regular cycles intercourse must be avoided from day 8—19 of the menstrual cycle. The time, 11 days, is long and the dates of ovulation are variable so that the method is not reliable.

Mechanical means, the Nirodh, is used by the husband who needs instruction. Failures occur and the woman should use a spermicidal jelly or a diaphragm.

Intra-uterine Device. This method, the insertion of a foreign body into the cavity of the uterus prevents the implantation of the ovum. Protection is given from the day of insertion until removal.

Lippes loop and the Copper T device are used (Figs. 20, 21). Either can be inserted after termination of pregnancy or by 5th or 6th day after delivery. Expulsion rate is greater when inserted post partum or post-abortion. Women can check that it is still in place by feeling or seeing the threads which are attached to the tail of the device (6.1.6.3).

Insertion is done by a physician. Before insertion a full gynaecological examination is necessary including inspection of the Os through a speculum.

Do not insert IUD if any signs of:

Pelvic inflammation; ulceration or erosion of the cervix; dysfunctional uterine bleeding; tumours of uterus or adnexa.

When cervical ulceration/erosions are found send the patient to hospital for both treatment and investigation to rule out malignancy. If negative, device can be put in (6.1.6.3).

Complications may occur:

1. Irregular bleeding, menorrhagia;
2. Pelvic pain;
3. Infection;
4. Perforation of the uterus;
5. Expulsion.

Bleeding the most common; if slight no need for removal, often ceases after the first month or two. Drugs are doubtful value but oral Iron will combat anaemia. If bleeding persists for three menstrual cycles remove the device. Pelvic pain is more common in women who have not borne children than in those who have and in a few is great enough to make removal necessary.

Latent infection may become active after insertion of device.

Perforation is rare, occurs at insertion. Almost always symptomless usual diagnosis by radiography when a device, which has not been expelled per vagina is missing on pelvic examination. When perforation is suspected send patient to hospital. Device may be expelled — replace it.

Oral Contraception. Practised regularly oral contraception is the most effective method of control except sterilisation. The pill commonly supplied is a compound of Oestrogen and Progesterone. Most pills are taken from the fifth day of the period for twenty-one days every month. (Some tablets are taken as a twenty-eight day pack, one each day without any break). You will be supplied with a type approved by Government and these might vary from time to time; the ideal pill contains the smallest amount of hormone which will give maximum success with minimum side effects. Do not use pills with more than 50 microgrammes of Oestrogen.

Before prescribing the pill examine the woman (including a gynaecological examination). Do not give the pill to a patient who has:

1. Hypertension, diabetes or heart disease;
2. History of venous thrombosis or embolism;
3. History or signs of malignant disease — especially in breasts or generative tract;
4. Liver disease — jaundice;
5. Varicose veins, cerebro-vascular accidents, history of depressive episodes;
6. If patient is lactating.

Side effects: mild nausea, vomiting, breakthrough bleeding, increase in weight, tenderness of breasts, headaches, increased vaginal discharge.

Most common in the first menstrual cycle they mostly disappear in three to four cycles. Symptoms vary with the type of patient. Sympathetic understanding and reassurance go far to ease mild side effects. Many variations of formula are available. You should be able to find a pill to suit most patients.

Serious side effects: A relationship does exist between taking the pill and venous thrombosis, pulmonary embolism and cerebro vascular accidents. Do not give pill to anyone with history of these conditions.

Women must learn that most oral contraceptives must be taken every day. If menstruation fails to appear at the usual time after the pill has been stopped, pregnancy must be excluded if the woman wants to begin to take them again.

5.1.14.3. Post Partum sterilisation.

Safe and satisfactory procedure; can be done at the PHC on patients delivered there. Best done within 48–72 hours (with good technique less than 0.5 per cent failure). Pomeroy's technique is simplest. It should not be done so soon after complicated deliveries or infection (6.1.6.1).

If the patient has been properly counselled and has had the operation willingly no psychological complications should follow. No evidence that dysfunctional bleeding or rapid weight gain result from post partum sterilisation.

In a PHC sterilisation can be done as an interval procedure by the abdominal technique: after a few days in PHC the woman can go home and begin household work in two weeks. Do not use vaginal technique in a PHC.

Vasectomy, male sterilisation, is safe and simple with local anaesthesia as an outpatient (6.1.6.4). After the operation contraceptives must be used for three months (or semen examinations, carried out after 3 months, do not show any sperm).

Failures nearly always due to poor operative technique. Recanalisation is possible after vasectomy or tubectomy but with limited success even in special centres.

5.1.14.4. Medical termination of pregnancy.

Permitted by the Medical Termination of Pregnancy Act (1971). The relevant portion of the Act says:

“A pregnancy may be terminated by a registered medical practitioner —

- a) Where the length of the pregnancy does not exceed twelve weeks, if such medical practitioner is of opinion, formed in good faith, that:
or
- b) Where the length of the pregnancy exceeds twelve weeks but does not exceed twenty weeks, if not less than two registered medical practitioners are of opinion, formed in good faith, that:
 - 1. The continuance of the pregnancy would involve a risk to the life of the pregnant woman or of grave injury to her physical or mental health;
or
 - 2. There is a substantial risk that if the child were born, it would suffer from such physical or mental abnormalities as to be seriously handicapped.”

Explanation 1. Where any pregnancy is alleged by the pregnant woman to have been caused by rape, the anguish caused by such pregnancy shall be presumed to constitute a grave injury to the mental health of the pregnant woman.

Explanation 2. Where any pregnancy occurs as a result of failure of any device or method used by any married woman or her husband for the purpose of limiting the number of children, the anguish caused by such unwanted pregnancy may be presumed to constitute a grave injury to the mental health of the pregnant woman.

In determining whether the continuance of a pregnancy would involve such risk or injury to the health as is mentioned in subsection (2), account may be taken of the pregnant woman's actual or reasonable foreseeable environment.

- a) No pregnancy of a woman, who has not attained the age of 18 years, or who, having attained the age of eighteen years, is lunatic, shall be terminated except with the consent in writing of her guardian.
- b) Save as otherwise provided in clause (a) no pregnancy shall be terminated except with the consent of the pregnant woman.

No termination of pregnancy shall be made in accordance with this Act at any place other than

- a) a hospital established or maintained by Government
or
- b) a place for the time being approved for the purpose of this Act by the Government.

The provisions of Section 4, and so much of the provisions of Subsection (2) of Section 3 as relate to the length of the pregnancy and the opinion of not less than two registered medical practitioners, shall not apply to the termination of a pregnancy by a registered medical practitioner in a case

where he is of the opinion, formed in good faith, that the termination of such pregnancy is immediately necessary to save the life of the pregnant woman.

It is permissible to carry out termination at the PHC under the Act when duration of pregnancy does not exceed twelve weeks. You will realise that this limitation is necessary because of the lack of facilities to treat any major complications that may result from termination.

Remember:

1. Induction of abortion after twelve weeks of gestation carries six times the risk before that time.
2. If a woman is not sterilised at the same time as termination there is a one in two chance that she will become pregnant again within a year and one in four chance of more than two pregnancies in eighteen months.
3. Even with an experienced operator abortions have a risk from haemorrhage, perforation and infection.
4. Late sequelae of repeated induced abortions are not easily computed. They are usually menstrual disorders, chronic pelvic pain, leucorrhoea and emotional disturbance.

Before undertaking termination you must carry out a thorough physical and gynaecological examination. Do not terminate at PHC if:

1. Pregnancy beyond ten weeks;
2. Patient's haemoglobin is less than 10.5g per cent;
3. Signs of genital tract infection, e.g. eroded cervix;
4. There is maternal illness, e.g. heart disease.

Vacuum aspiration best method of termination — using plastic cannulae and dilators; if not available metal dilators and cannulae (6.1.6.2) (Fig. 19). Classical D & C has higher risk than vacuum aspiration.

N.B. You must make as accurate as possible an estimate of the pregnancy. Make sure that the history and the results of examination are compatible. If there is suspicion that pregnancy is more than ten weeks then send to hospital.

After termination keep at the PHC for twenty-four hours if possible. Give prophylactic antibiotic therapy. FHW will visit home at the end of a week and again at six weeks after termination.

Patient must be told to come to PHC before or between visits if any difficulty or complaint. Before termination discuss sterilisation or contraception. If concurrent sterilisation is accepted send to hospital — do not do it at PHC.

If sterilisation is refused; then contraception and agreement to insert IUD after termination. Termination should be followed by contraception but do not refuse termination if both sterilisation and contraception are refused.

Patients then included in FHW's regular visiting cycle (3.4.3). Family planning camps are one method of increasing the effectiveness of family planning campaigns. Usually organised from district headquarters and district staff participate; local health workers will assist but planning requirements must not interfere with the ongoing work of the centre.

5.1.15. Common Gynaecological Complaints

A male physician should never examine a female patient unless a female attendant is present. This precaution is to protect himself against charges of malpractice. Rectal examination should be preferred to vaginal examination in unmarried girls.

5.1.15.1. Delayed Menarche.

Age of menarche varies; usually 13–16 years. At times delay causes concern to parents. Make a thorough general physical examination to rule out any organic disease. Gynaecological examination should be limited to an inspection of the vulva to rule out imperforate hymen. If everything normal, reassure parents, recommend normal active life and improvement of nutrition. If menstruation has not commenced by sixteen years of age, refer the girl to hospital.

5.1.15.2. Dysmenorrhoea.

Common complaint — primary dysmenorrhoea without cause.

Mild — Often no treatment required. Reassurance and normal active life is enough.

Severe — For relief of pain give analgesics — Aspirin, Novalgin, Codeine etc. Reassure the patient and recommend normal life. Do not continue analgesics for long periods lest they become a habit.

If woman is married D & C will help and this can be done in PHC; vaginal delivery of an infant usually gives great relief. If pain is severe in any woman she should be seen in hospital. After examination, Stilboestrol (0.5mg) taken by mouth for 14 days from the first day of the cycle relieves the pain. In married women D & C is to be preferred to hormone therapy.

Secondary dysmenorrhoea — make a thorough gynaecological examination as this is most often due to organic causes — tumours of the uterus; endometriosis; pelvic infection; displacement of the uterus. Send patient to hospital. For immediate but temporary relief give analgesics.

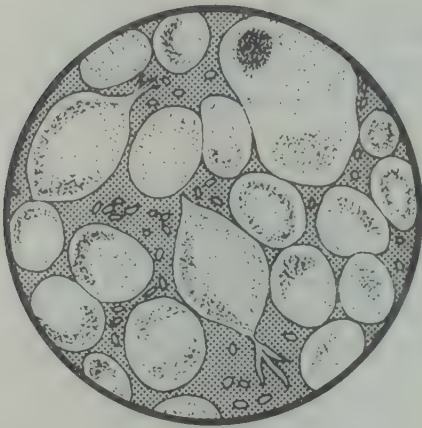
5.1.15.3. Menorrhagia and Dysfunctional Uterine Bleeding.

If no organic cause is found after medical and gynaecological examination, it is termed dysfunctional uterine bleeding. It is common at puberty; but in most women the normal cycle flow becomes established within a few months. No treatment is indicated in these cases except Iron orally to avoid anaemia. Reassure the parents that this will cease and encourage the girl to lead a normal life. If bleeding persists more than a few months refer her to hospital. If such bleeding occurs in a married woman, do a D & C send the scrapings for histopathological examination to rule out any endometrial disease. Often D & C gives relief temporarily. Treat anaemia with Iron.

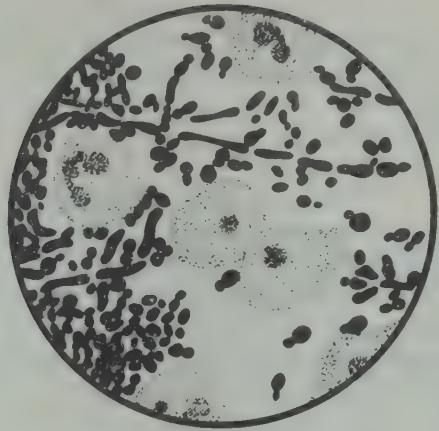
Menorrhagia and dysmenorrhoea are common symptoms with pathological lesions in the genital tract (see above). Send to hospital — women who develop menorrhagia/metrorrhagia late in life are best sent to hospital. They require detailed investigation and treatment.

Figure 5

LEUCORRHOEA



Trichomonas (unstained)
Two organisms. Pus and
epithelial cells in discharge.



Thrush (Gram's stain)

5.1.15.4. Amenorrhoea.

Amenorrhoea is physiological before puberty, during pregnancy and lactation and after menopause. Otherwise is pathological requiring special investigation and treatment. Women with this complaint should be referred to hospital.

Pregnancy is commonest cause of secondary amenorrhoea but it may also occur from general ill health, in tuberculosis, and sometimes after destruction of the endometrium after a septic abortion or delivery.

5.1.15.5. Leucorrhoea.

Frequent symptom — often associated with others like backache, general weakness etc. When associated with local itching infection is usually the cause. Most can be identified and treated in the PHC.

Mix a drop of the discharge with a drop of Saline on a warm slide and examine immediately under the microscope.

In Trichomonas infection the discharge is yellowish, watery and profuse, the vaginal mucosa is stippled with red spots and the smear shows many pus cells and mobile organisms (about the size of a pus cell). Treatment is Metronidazole (Flagyl) 250mg three times daily for one week. Treat both wife and husband (Fig. 5).

In monilial infections the discharge is thick, white and curdy. The smear shows pus cells, many spores and branching filaments of thrush. Treatment is local, either painting with Gentian Violet 0.5 per cent aqueous solution (this dye stains clothes and care is necessary), or by the insertion into the vagina of two tablets of Mycostatin (Nystatin) each night for fourteen nights on going to bed. (Fig.5).

After treatment examination should be made to exclude any signs of cancer of the cervix or body of the uterus.

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Gonococcal infection — Tetracycline 500mg orally initially followed by 250mg four times daily for five days. If ulceration of vulva, vagina or cervix are present send patient to hospital for biopsy and treatment. Send also cases without ulceration or specific organisms.

5.1.15.6. Ulceration of Cervix.

Benign and Malignant. Always remember cancer of the cervix is very common. Age is not important, cancer occurs in the young. Excessive, sometimes blood-stained vaginal discharge or bleeding on coitus are early signs. **Pain is a late symptom.** Always inspect the cervix with a speculum whenever you examine a parous woman or any one who complains of the above symptoms. If you find the cervix unhealthy — be it even a benign erosion — to hospital for investigation and treatment.

If you can do a biopsy and send the specimen to the nearest laboratory for histopathological examination. If the report is non-malignant lesion then you may, if you have the facility cauterise the cervix (6.1.6.5). In these cases of chronic cervicitis, the endocervix is often involved. Hence you should cauterise the endocervix also. If possible, it is best to refer these cases to hospital.

5.1.15.7. Pruritis Vulvae

Common complaint — causes are the same as leucorrhoea so treat as in 5.1.15.5. Genital hygiene important. Psychosomatic factors, worry and tension, neurodermatitis and general disease like diabetes are other aetiological factors to be considered. After menopause Oestrogen deficiency makes the genitalia prone to infection. For this Oestrogen cream combined with an antibiotic is useful. Where no cause can be found, antipruritic lotion or cream containing 1 per cent Hydrocortisone with an antibiotic helps. Persistent cases need consultation in hospital.

5.1.15.8. Infertility.

Failure to conceive after 2—3 years of married life. Not uncommon and such couples are often eager to have advice and aid. May be due to reasons in the female or male. In the former common causes are blockage of the tubes due to previous infection, pyogenic or tuberculous; failure of regular ovulation, infection of the cervix. In the husband there may be failure of sperm production as shown by complete absence or low sperm counts when semen is examined or functional disturbances like impotence or premature ejaculation. Once the fact of infertility has been ascertained investigation is required and this should involve both man and woman. Send to hospital.

5.1.15.9. Prolapse.

Common in multigravidae due to laxity and stretching of the tissues supporting the uterus and vagina.

The woman complains that something comes out of the vagina on straining. Diagnosis made by vaginal examination. Prolapse may affect the vaginal walls

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only, the anterior wall (a cystocele) may involve the bladder and the posterior wall (rectocele) the rectum. In other cases the uterus descends and the cervix may appear at or lie outside the introitus.

When the degree of prolapse is slight and if the woman wishes to have further children treatment must be conservative; improve nutrition, avoid severe physical strain and if possible get the woman to undertake exercises to improve the muscle tone of the pelvic floor.

Prolapse occurs most often at menopause or later. Surgical repair is required in hospital.

Prolapse of the cervix can occur during pregnancy or be found at the first post-natal examination and requires application of pessaries and follow-up observation.

5.1.15.10. Post-menopausal bleeding.

May be the first symptom of malignancy in the genital tract. You must send patient to hospital.

5.1.15.11. Cancer of the Genital Tract.

Commonly affects uterus, cervix and ovaries, less commonly fallopian tubes, vagina or vulva.

- a) Body of the uterus; vaginal discharge and irregular bleeding or bleeding in the post-menopausal woman always requires referral to hospital.
- b) Cervix; vaginal discharge with spotting especially after intercourse or physical strain, in late stages profuse blood-stained discharge or bleeding, anaemia, backache, dribbling urine.
- c) Ovaries; gastro-intestinal symptoms like loss of appetite, flatulence, constipation or diarrhoea and heaviness in the lower abdomen in early stages. In late stages ascites, oedema of legs and abdominal pain.

5.1.15.12. Cancer of the Breast.

Often far advanced when seen in hospital. Early detection possible if women are taught to examine themselves every six months and to report any lump or the onset of any discharge from the nipple. A routine check should be made by the FHW; at least once a year she reports all lumps and nodules — many will not be malignant but all must be checked if cases of malignancy are to be found. These patients must be sent to hospital.

5.1.15.13. Other conditions.

Tumours of the genital tract and vesico-vaginal fistulae. Send to hospital.

You may have a patient with a twisted ovarian cyst as an acute emergency. If the patient cannot be transferred you are committed to do a laparotomy. Avoid operation at the PHC if possible. Do it only if there is no other course possible. Ligature the pedicle, cut it between the ligatures and remove the cyst.

Most of the gynaecological problems require referral to hospital. They are not acute emergencies except a twisted ovarian cyst or a ruptured ectopic gestation.

Section 5.2. THE CARE OF CHILDREN

5.2.1. Introduction and Principles.

Growth and development are the essential characteristics of childhood. Infection and insufficient food are the commonest reasons why growth and development are impaired and why so many children die. The major tasks of the health team in their care of children are to protect them against infections, to give prompt treatment and do all they can to help children to get sufficient food.

Truths about Children and Mothers.

1. All child care works through the mother (or mother substitute) who must accept, understand and follow the advice you give, must use medicine you prescribe and carry out any treatment you think necessary.
2. If mothers understand they usually accept; if they believe and trust you because they feel you are concerned about their children they usually do what you tell them.
3. Mothers are often subjected to family influences from relatives who you will also need to reach and win over as helpers.
4. If children are well nourished and free from major infective illnesses they will usually thrive unless they have some congenital defect or accident which prevents them.
5. Adequate nutrition is the most important requirement for any child, only with adequate food can full development occur.
6. Local foods in sufficient quantity, used with knowledge can always provide adequate nutrition.
7. At least 95 per cent of all illness in the first five years of life is the result of insufficient or improper food, infection or infestation or a combination of these things. Treat infection in the child's home as often as possible. Prevent as much as possible.
8. The child's reaction to infection always reflects his nutrition; poor nutrition means poor resistance.
9. About 50 per cent of infant deaths occur in the first month of life, but considering early childhood it is the period six months to six years which can be most rapidly made safer for that is the time when risks of severe malnutrition and infections are greatest.
10. In the long term the doctor's educational role is more important for mothers and children than his therapeutic.
11. Children under six 'At Risk'.
 - (1) Weight 65 per cent of reference (Table 4).
 - (2) Failure to gain weight in three successive months.
 - (3) Loss of weight in two successive months.
 - (4) Weight less than 1.5kg at birth.

5.2.1

5.2.2

5.2.2.1

5.2.2.2

(5) If any of the above develop episodes of acute infection.

Three-quarters of all deaths in the 'under-five' age group show one or more of these factors.

12. When the birth intervals in a family are one year or less there is a higher risk of malnutrition and infant death than with birth intervals of three years or more. Make birth interval of three years the accepted normal for your Block.

5.2.2. Growth and Development.

5.2.2.1. Factors determining growth.

The changes which characterise childhood from birth to physical maturity are complex, growth in weight and height, development of intelligence, emotional change and social conditioning all take place simultaneously yet each type of change has its own pattern in time and the different systems of the body their own periods of greatest development.

Thus as the child grows changing from a baby, to the toddler, then the long-legged schoolchild to reach puberty; each age has its characteristic pattern through which each child must pass.

During this time growth in weight is sometimes greater than growth in height and sometimes height is faster than weight. During the first two years head circumference increases faster than at any other time indicating great development of the central nervous system. Growth in length of legs occurs in the second and third years as the child walks. On the other hand, sexual development does not occur until puberty.

While these physical changes are occurring the child is learning skills, sitting, walking, talking, etc., in a definite sequence, and behaviour also changes.

These changes, physical, mental and emotional, all included in the idea of development, are determined by genetic inheritance, by nutrition (i.e. by food supplies) and by social and other teaching coming through local customs. Development can be altered from the normal by genetic factors, by insufficient or improper food, by adverse factors such as infective illness or injury producing physical change or by lack of maternal care or intellectual stimulation producing emotional or mental slowing.

Even under the most favourable conditions children of the same age show variations in the rate of growth and the attainment of skills and in judging the performance of any child for any characteristic (weight, height, movement or social development) it is necessary to know the limits of that variation: i.e. the limits of normal variation. These limits must be known and measurable for the population of which the child under examination is a member. It is also necessary to measure and record the child's performance to compare with the normals for the population.

5.2.2.2. Finding a standard.

To know whether a child is growing or developing normally in respect of any characteristic (height, weight, locomotor skills, intelligence) it is necessary to be able to measure and record the characteristic, to know the age of the child

and to compare it with the range of measurements accepted as normal for the population. Such a population standard is obtained by measuring the characteristic whatever it is in many children of the same age and setting out the results in the form of a percentile chart.

The measurements are then arranged in order of magnitude beginning with the least (in weight, height or time depending on the measurement): the 3 percentile means that only 3 per cent (3 in each 100) of individuals measured had values which fall below that line, other lines can be drawn for 10 per centile, 25 percentile, 50 percentile and so on to 97 percentile. By measuring many children of each age group a percentile chart can be constructed for all ages in childhood.

By measuring at intervals an individual's performance in respect of weight, height, etc., and recording these on a percentile chart the progress of the individual can be assessed over time. Single measurements can be misleading.

5.2.2.3. Milestones of development.

In the way described above changes in the various aspects of growth have been measured and from the data collected it is possible to give an estimate of the time when a child can be expected to reach certain measurements or attain certain skills. These are the 'milestones of development'. The concept is useful but remember that a median value is given and must be applied to any single characteristic with caution. Thus some children sit up or speak earlier than others, weight at six months can vary with birth weight. In judging a particular child the observer must take as many factors as possible into consideration. Accepted milestones of development are given in Table 3 and those for weight alone in Table 4.

Table 3
Milestones of Development

Acceptable standards of weights at ages to six years are given in Table 4.

The 'milestones' given here are approximations and to assess any individual child all types of growth development and behaviour must be taken into account.

	Motor development	Language development	Adaptive development	Socio-personal development
6-8 weeks				looks at mother and smiles
3 months	holds head erect			
4-5 months		listening	begins to reach out for objects	recognises mother
6-8 months	sits without support	experimenting with noises	transfers objects hand to hand	enjoys hide and seek
9-10 months	crawling	increasing range of sounds	releases objects	suspicious of strangers
10-11 months	stands with support	first words		
12-14 months	walks wide base		builds	
18-21 months	walks narrow base beginning to run	joining words together	beginning to explore	
24 months	runs	short sentences		dry by day

5.2.3
5.2.3.1
5.2.3.2

5.2.3. Growth and food.

5.2.3.1. Weight as an index of growth.

The practical problem facing the health team is to teach mothers so that they feed their children adequately. They are therefore always concerned with the child's growth, food intake and protection from infections. In the first six years of life weight and rate of gain in weight are the best single measurements of growth. It is also the simplest to measure and chart as a record of progress over a period of time.

Rate of growth in weight is greatest during the last three months of pregnancy provided the mother has sufficient food. At birth rate of gain is already slowing but it is still rapid in the first five years and this time is of greatest significance because it is then that the brain grows quickest.

Weight gain like other measurements can be plotted after weighing on a chart (7.5). The chart should carry either percentile lines as described above (5.2.2.2) or as in Fig. 35 a series of lines indicating stages of malnutrition. The lines indicating the stages of malnutrition have been derived from data in Table 4 which gives the 50 percentile line of weight for children with optimal growth ('Harvard' standard or Indian children from families in good economic circumstances) and the percentage of those values accepted as denoting the stages of malnutrition.

Some charts have percentile markings on Harvard standards and to ascertain if an individual child's weight falls within a stage of malnutrition it is necessary to use the data given in Table 4 or, more quickly, to have a transparent sheet of polythene or old X-ray film on which the lines of the various stages have been drawn. This placed over the chart shows the position regarding any child.

From Table 4 it can be seen that

1. Any weight above the 80% of standard is acceptable.
2. Weights between 70–80% of standard rank as 'mild' malnutrition.
3. Weights between 60–70% moderate.
4. Weights between 50–60% severe.
5. Weights less than 50% very severe malnutrition.

The objective therefore is to keep the child above the 80% of standard or above the 3 percentile depending upon the type of chart used. In each case the principle is the same — regular weighing of all children with repeated practical advice about food and protection or treatment of infections.

5.2.3.2. Requirements for effective care of children.

Widespread establishment in villages, subcentres and PHC of Under Fives clinics (6.2.12.2) so that

1. Children can be weighed
2. Advice and assistance given regarding food.
3. Infections prevented.
4. Infection treated.

Table 4

Standard (50 percentile) with Stages of Malnutrition (weight in kg)

Age in months to 5 years	Percentage of the standard					Very severe 50%
	Standard*	Acceptable 95%	Mild 80%	Moderate 70%	Severe 60%	
3	3.7	5.4	4.5	4.0	3.4	2.8
6	7.4	7.1	5.9	5.2	4.5	3.7
9	8.8	8.4	7.1	6.2	5.5	4.4
12	9.9	9.4	7.9	6.9	6.0	4.9
15	10.6	10.0	8.5	7.4	6.4	5.3
18	11.3	10.7	9.0	7.9	6.8	5.6
21	11.9	11.3	9.6	8.3	7.2	5.9
24	12.4	11.7	9.9	8.7	7.5	6.2
27	12.9	12.2	10.5	9.2	7.8	6.4
30	13.5	12.8	10.8	9.5	8.1	6.7
33	14.0	13.3	11.2	9.9	8.4	7.0
36	14.5	13.8	11.6	10.2	8.7	7.2
39	15.0	14.2	12.0	10.5	9.0	7.5
42	15.5	14.7	12.4	10.8	9.3	7.7
45	16.0	15.2	12.8	11.2	9.6	8.0
48	16.5	15.7	13.2	11.5	9.9	8.2
51	17.0	16.1	13.6	11.9	10.2	8.5
54	17.4	16.5	14.0	12.2	10.5	8.7
57	17.9	17.0	14.4	12.6	10.7	8.8
60	18.4	17.4	14.7	12.9	11.0	9.2
Boys						
66	20.7	19.7	16.7	14.6	12.4	10.3
72	21.9	20.8	17.5	15.3	13.1	10.9
Girls						
66	20.0	19.0	16.0	14.0	12.0	10.0
72	21.1	20.0	16.8	14.8	12.7	10.5

*The standards given are the (50 percentile) weights for the 'Harvard' children with optimal growth opportunities. These values are similar to Indian children in good economic circumstances.

For weighing and measurement of height, 6.2.2.1–2.

For conduct of clinic, 6.2.12.2.

For use of chart, 7.5.3.

All health workers and mothers must understand and accept the use of weight charts to focus the monitoring of the growth of children. Scales should always be available but if not the nutrition of children between one year and five years of age can be assessed using the Quac stick test (6.2.2.4) which is based on the fact that between those ages the circumference of the upper arm remains almost unchanged.

5.2.3.3. Food Requirements for normal growth.

During childhood food is required to provide energy for the maintenance of the chemical processes of the body, and building materials for growth. Energy is measured in terms of heat and foods have a heat producing capacity per unit of weight. Certain foods also contain proteins used in the production of new body tissue in replacement and growth. All the amino-acids essential for the production of nuclear material come from proteins. Proteins are present in foods in different amounts and more of some proteins than of others are required to make a given amount of human protein for growth or replacement. (Table 2). Fats are principally sources of energy. The body also requires supplies of minerals and of a number of chemical substances known as vitamins which are essential for the maintenance of metabolic pathways.

More food per unit of body weight is required when the body is actively growing — i.e. in childhood than in adult life. Exercise or physical work also increases food requirements.

The secret of nutrition in children is to make sure the child gets sufficient food to provide adequate calories and that his food contains sufficient protein, carbohydrates, vitamins and minerals. Energy needs are satisfied before building needs so that when heat producing food is short protein material required for growth is used to provide energy.

The child who is breast fed receives a food which can provide for his growth for the first six months so long as his mother is well nourished and he gets sufficient quantity of milk. Human milk varies with the nutrition of the mother and that from a well nourished woman contains sufficient protein, fat and carbohydrate, vitamins and mineral. During the first year the baby requires about 120 calories/kg/Body weight in twenty-four hours, i.e. about 170ml (6 oz) of milk per kilo. The approximate amounts required can be calculated from Table 5. Small babies need relatively more food and if a child is seen below his expected weight his food intake should be increased to that for the expected and not actual weight.

During the first three months the breast milk is usually sufficient for the infant and he grows as expected but from that time his weight gain slows and he requires supplements if his growth is to be maintained. The child of average weight will gain about 2.5kg in the second year at the end of which he may be 12.5 kg in weight and require about 1200–1400 calories a day (Table 5).

Proteins are essential. Formed from amino acids; all but a few can be made in the body. Foods are graded in value by the amount of essential amino acids

they contain. Human milk, eggs and animal and fish protein have high values. Animal proteins are expensive, fish varies in price, consumption is generally low. Plant and vegetable proteins vary greatly in amount and the content of their essential amino acids. But a vegetable diet containing sufficient protein is obtainable everywhere. Grams and legumes are good sources and are complementary when eaten together. In any diet if 8–10 per cent of calories can be given as protein this will be sufficient. The remainder of the calories comes largely from carbohydrates.

The Principles of feeding which you must remember and act upon are simple. Make sure:

1. The child has sufficient food each day; i.e. sufficient calories 100–120 per kg body/weight.
2. 8–10 per cent of total calories are given as protein.
3. Local foods are used.
4. Children are fed often enough.

To do this you need to know the food requirements at a given age (Table 5) and how much, in terms of local weights and measures, of the different foods are required. All foods will not be available in every area, some areas will use foods not used in others, you must therefore construct tables suitable for your area or modify those given in this manual for local needs. Attention must also be given to cost and to local ways of preparing food so that established customs are disturbed as little as possible. Protein intake in most cases will be established by the use of grams, legumes and groundnuts. Calorie value comes mostly from cereals, i.e. from wheat or rice flour (Table 2).

Advice about the use and preparation of foods must take note of the vitamin intake. Attention must be given to the bulk of food required when the diet is composed of cereals, grams and groundnuts. Small children may not be able to take sufficient food unless frequent meals are given, perhaps more often than the usual custom. Women who are working outside their families have less time for cooking and are more likely to follow advice which recommends food commonly used by the family and which they know how to prepare.

Mothers are most likely to ask advice when children are ill. In most fevers the caloric need is increased and the child should have his ordinary food or more if he will take it.

Calcium and Iron are important. Calcium is needed for bone growth and for teeth: it comes from all milks, millet and ragi and from green vegetables like amaranth (chulai), fenugreek (methi) and drumstick leaves.

Iron comes from meat, liver, eggs: green vegetables, cereals, bajra and ragi. Milk is not a good source of Iron and leafy vegetable soup and pulses must be introduced as early as possible in weaning.

You will find information regarding vitamins in 5.2.5, dishes and data for diet construction and recipes for dishes suitable for infants and young children in 6.2.2.7.

5.2.4

5.2.4.1

5.2.4.2

5.2.4. Breast Feeding (see also 5.1.3.5 and 5.1.11.3).

5.2.4.1. Control of lactation.

In rural areas breast feeding of infants is accepted and mothers follow the local techniques. Preparation for breast feeding is part of ante-natal care and will be taught by the nurse; you must also try to discover if anything is taught by the dais in your villages.

Lactation is controlled by emotion and by pituitary secretions. The nursing mother enjoys feeding her child but needs to have plenty of time. Each breast has 17–20 segments with collections of secreting cells and from each segment a duct carries the milk to the nipple each duct with its own opening. Milk is secreted suddenly and actively under pressure and as the mother gets into a rhythm of feeding, the secretion and flow of milk can happen even without the infant present. The suckling of the infant also acts as a stimulus so that both breasts secrete and the milk may spurt from the side not in use. Mothers recognise this feeling as the milk is secreted and there is usually a local name for it. As a rule lactating mothers are never far from their infants.

Many women avoid certain foods and these vary in different parts (rice, eggs, root and leafy vegetables, fish, meat) but it is important to see the mother has a sufficient diet containing what she thinks will do her good and that she has adequate fluid to drink.

5.2.4.2. Beginning breast feeding.

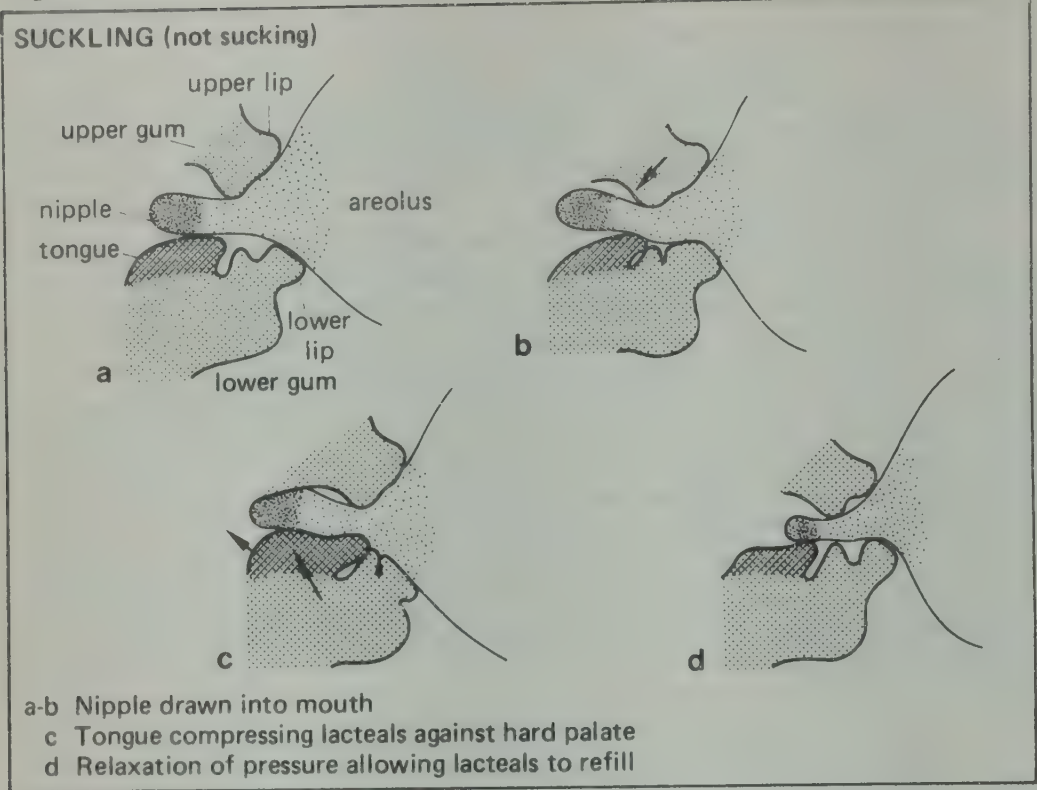
The infant can be put to the breast as soon after birth as the mother wishes, either before or after she sleeps. It is important to do this so that the baby gets the colostrum in the first 24–72 hours before the milk 'comes in'. This colostrum is rich in protein and important because it carries antibodies to help to protect against infection while breast feeding continues.

Unfortunately sometimes the colostrum is thrown away and the infant is given water, sometimes sweetened and sometimes with a herbal mixture. This is usually given with a spoon. It may be inhaled. It is also bad because, since the infant is not put to the breast, both the mother and baby are deprived of the mutual stimulus of suckling.

As the milk 'comes in' the breasts may become tense but if the ducts are free very tight engorgement should not occur (5.1.3.5). Tension may be relieved by gentle massage or by the suckling of the infant. From the third day milk production increases; infants are fed irregularly at first but as the quantity at each feed increases so does the time the infant remains before again becoming hungry. After a month or so 5 or 6 feeds in the twenty-four hours are usually sufficient: some babies wake at night for a feed others do not. If no night feed is given the first day feed tends to be larger than the others: the secret is for the mother to get to know her own baby and to feed him when necessary. She must also know when he is satisfied by learning to understand the baby's behaviour.

If the mother is in bed she usually prefers to feed lying down; during the day she sits up and leans forward so that the baby, lying in the crook of her arm can get the whole nipple and areolus into the mouth as he grasps it once the mother's breast has touched his cheek. As this happens mother will feel the 'letting down'

Figure 6



of the milk and she may find it necessary to control the outflow with the thumb and forefinger of the hand on the same side as the breast held by the infant. At the same time milk may drip from the other side and this also may require control by the fingers of the other hand.

5.2.4.3. Suckling

The process of suckling is shown in Fig.6. The nipple is taken into the mouth beyond the gums between the tongue and the hard palate and 'milked' with the tongue so that milk in the lacteal sinuses in the areolus is forced into the mouth; when the pressure of the tongue is relaxed after swallowing more milk enters the lacteal sinuses and the movement is repeated. It is milking (suckling) not sucking. If the breast is hard and tense or the nipple is held down or inverted then the baby cannot get it into the mouth to allow milking to begin. Instead the gums bite on the nipple which is soon injured and cracked and then becomes painful. The 'cracked' nipple is also liable to infection. Thus if the breast is tense pressure can be relieved only by gentle massage until sufficient milk has been removed to make the tissues soft.

Unless very greedy and excited the baby at the breast swallows very little air; some do need 'winding' and some also tend to bring up a mouthful or two of milk with the wind. Some babies seem to enjoy this and do it almost every feed but so long as the weight gain is good all is well.

On breast milk the baby's faeces are soft and yellow, sometimes rather curdy and green. Usually some stool is passed at each feed but the number varies from 2–6 or so each day and so long as the infant's behaviour and weight gain are satisfactory and the stool is soft everything is normal.

Mothers should be encouraged to have their babies weighed by the village worker or health worker. Weight is recorded and is the beginning of a valuable educative process for the mother (5.2.3.1).

5.2.4.4. Weaning.

For many infants the breast milk alone is insufficient for proper growth after the fourth month. Weight gain slows or weight levels off and extra food is needed to allow normal gains to continue (6.2.2.6). This failure to gain sufficiently may be missed without regular weighing.

The extra food must be sufficient to make good the deficiency. The mother needs to be told and shown what foods to give, when to give them, and how to prepare them. Signs of underfeeding are failure to gain weight, misery, small hard stools and finger or thumb sucking or, if underfeeding has been long continued, apathy.

Opposition to sufficient weaning food may come from people holding local or traditional beliefs about foods for babies. The health worker must have patience and skill to persuade people to adopt new ways.

Food given to the baby must be freshly prepared and the utensils and dishes must be clean; as far as possible food based on a mixture of pulses and cereals locally available.

On the first occasion only a small amount is given from a spoon to get the baby accustomed to the change of consistency and taste. The food should be a pulp with as little husk or skin as possible; it should be just warm, about body temperature. If it is necessary to begin as early as 3–4 months feeding can be started with banana or a cereal like suji: porridge can be made with atta, ground rice, ragi, millet, etc.: increase over 3–4 weeks to about 60 g (2 oz) say half a cup. Fruit can be used for flavouring.

From 5–8 months the variety of foods can be extended to include seasonal vegetables, peas, beans, carrots, potatoes; they can be boiled or steamed. Combination of rice and legumes, curds, egg, minced meat and fish can be given. By 8 months the child is sitting up, and can put things into his mouth (6.2.2.7).

During this time the mother continues to breast feed but by the end of the first year she may only have 200–300 ml of milk in twenty-four hours so that he needs about 1,000 calories from other sources; since cereal food is bulky the child needs frequent feeds throughout the day.

Points about weaning of children.

1. The feeding of children is not a rigid routine.
2. It is based on common sense and the use of familiar local foods.
3. Most children will thrive if given enough food containing enough protein.
4. Children have likes and dislikes and given choice they take what they like.
5. Appetite varies a little from day to day.

5.2.4.4

5.2.5

5.2.5.1

5.2.5.2

6. The mother should know the amount the child needs and the frequency of feedings.
7. The baby or young child should have his own bowl so that the amount of food he takes is known.
8. Feeding can be by spoon or hand — but hands as well as spoons should be clean.
9. Babies and young children are often left in the care of older children when mother is working. They can learn how to feed and look after the younger children.
10. In different parts of the country foods are made from different types of flour, different grams or dals and different sugars; the essentials are the same everywhere. When milk is available it should be used, either cows, buffalo or goat, but it is not essential after breast feeding ceases. It should always be boiled.

5.2.5. Malnutrition.

5.2.5.1. Types of malnutrition.

The commonest cause of malnutrition is insufficient food of all types — not enough energy producing food or amino acids to allow normal growth. The measurement of this is given in 5.2.3.1 and the estimated frequency in villages given in Table 5.

Insufficient food — Marasmus — is the **main cause** of malnutrition.

Two other types are seen and since both may be present in children who get insufficient food, the clinical picture is the result both of shortage of food and particular food deficiencies.

The other types described are:

1. Protein deficiency resulting in Kwashiorkor.
2. Vitamin deficiencies producing specific clinical syndromes.

In practice a child suffering from either of the above is likely also to have a low total intake.

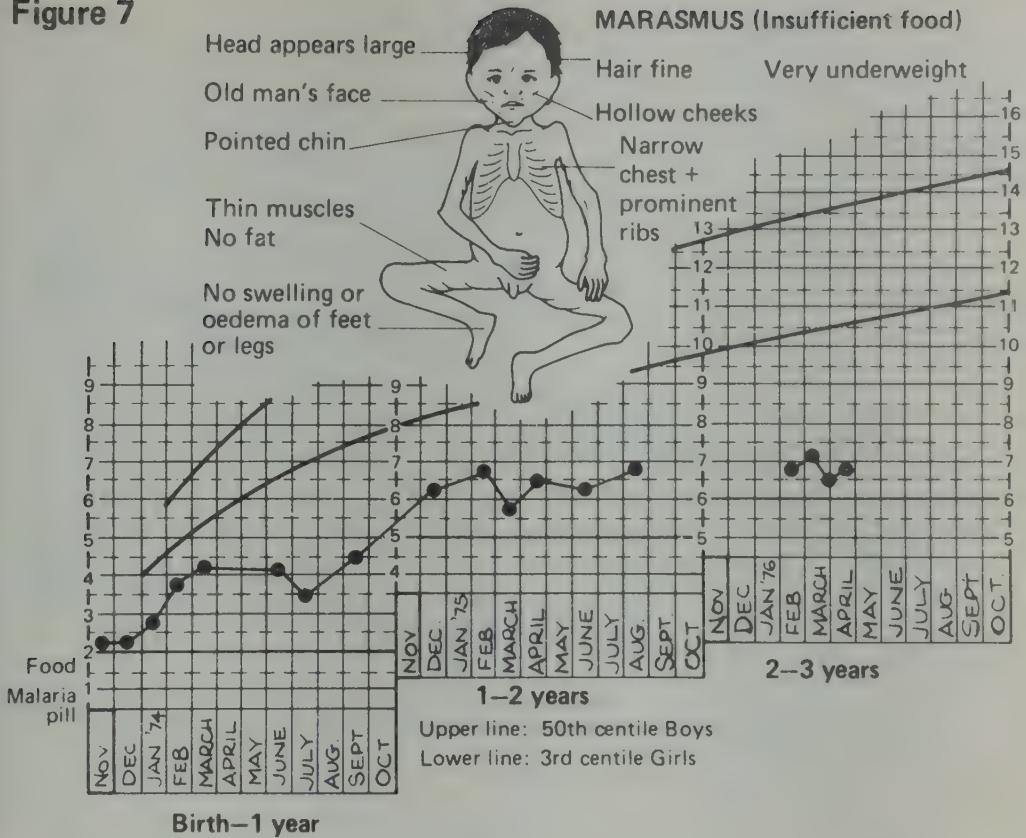
Malnutrition and infection go hand in hand. The first reduces resistance and makes the child more likely to get infected, and also infections are more serious in malnourished children than in children whose nutrition is normal. The presence of infection also increases the food requirements so that a child who can just maintain growth when free from infection can develop signs of malnutrition when infected.

5.2.5.2. Marasmus.

This term is used to describe the failure to grow and the thin wasted appearance of a child who does not receive sufficient food; it would be better called 'wasting' which makes its origin clear.

A typical weight chart and the appearance of a child are shown in Fig.7; note failure of adequate weight gain after the 5th month, from then on the child was

Figure 7



always malnourished, by one year was below 70% of the standard given in Table 4, and by 22 months was below 60% falling into the category of severely malnourished.

In such a child, the infant proportions persist e.g. large head, subcutaneous fat is thin, muscles thin and lax, abdomen distended.

In treatment, search for infection and infestation, make sure child has **sufficient** food for his expected weight. In Fig. 7 at 22 months the 80% of standard would have been 9.2 kg whereas the actual weight was 7 kg. Remember 80% is the lowest weight accepted as normal, to reach the 50 percentile he would have to have been between 12 and 13 kg.

The causes of this common type of malnutrition are easily understood but not easily remedied.

Causes of malnutrition.

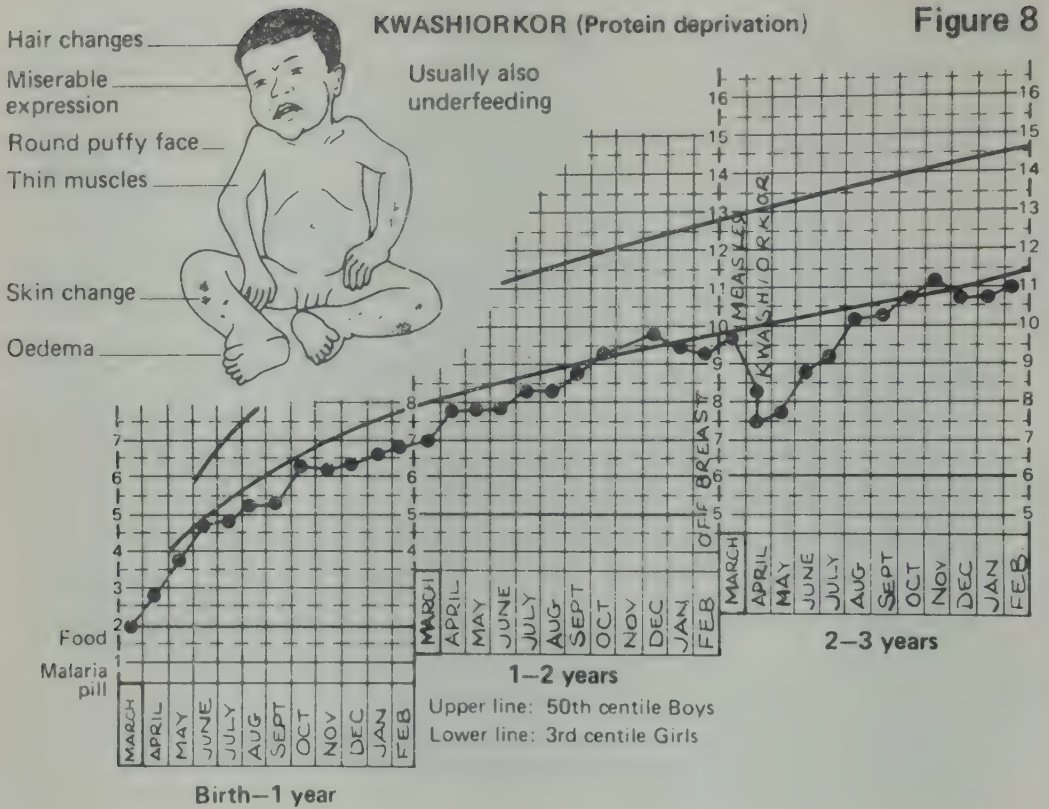
Family poverty.

Food habits and traditional usages which diminish food intake or exclude useful foods.

Family size and failure of family planning: the risk of malnutrition increases with birth order.

Illiteracy hindering the spread of knowledge.

The care of young children by older brothers or sisters whilst mothers work, unless the older children have been taught the food needs of the younger.



5.2.5.3. Kwashiorkor (protein deficiency).

This type of malnutrition is seen when the protein intake is insufficient or when there has been a sudden increase in protein requirements, for example after measles in a child who has been receiving just sufficient protein. It can occur when the total food is sufficient in terms of energy, that is when carbohydrate intake is enough but protein is low, but it is more often seen when total food intake is low and protein disproportionately so.

Fig. 8 shows the chart of a child who developed Kwashiorkor after measles. From 3-4 months he had been gaining weight slower than he should although between 21 and 24 months he was just about 80% of standard. Then just after his second birthday he had measles, his weight fell sharply and he developed the signs of protein deficiency as well as marasmus.

The important features are shown in Fig. 8: a child already underweight and thin becomes very miserable and although his muscles are thin his subcutaneous tissue becomes puffy with oedema, this is most apparent on the face and the legs and feet but fluid may collect in the abdominal cavity. The reason for this is that the level of protein in the circulating plasma protein is too low and fluid escapes into the subcutaneous tissue because the osmotic pressure is reduced. The lack of protein may also be seen in the hair which becomes brittle and sparse and may change colour, and in skin changes with rough flaking areas seen particularly on the legs. Signs of vitamin deficiencies may also be present (5.2.5.5). Thus the swelling hides the underlying thinness of muscles.

Table 5**Prevalence of Malnutrition in Children and Daily Food Requirements.****(a) Estimates of Malnutrition under 5 years of age in a Rural Population**

Nutritional Status (Table 4)		In Community Block 80,000 pop. all ages	In Village 800 pop. all ages	Number of children under 5 years of age
Above 80%	Acceptable	3,000	30	
	Malnourished			
Mild 71–80%	Grade (I)	4,800	50	
Moderate 61–70%	Grade (II)	4,300	40	
Severe 51–60%	Grade (III)	1,300	10	
Very severe Below 50%	Grade (IV)	270	3	
Kwashiorkor		220	2	

(b) Approximate daily requirements calories and protein at ages to 12 years

Age Group	Body weight (kg)	Energy (cal)	Protein (g)
Birth to 6 months	3–7	600	11
6 months–1 year	7–9	800	13
1–3 years	9–13	1200	18
4–6 years	15–17	1500	22
7–9 years	18–21	1800	33
10–12 years	23–28	2100	41

National Institute of Nutrition India 1972

5.2.5.3

5.2.5.4

5.2.5.5

Treatment is again to combat any infection or infestation and to carefully and cautiously build up the child's intake of food paying particular attention to his protein intake.

5.2.5.4. Anaemia

Most malnourished children are anaemic.

Causes:

1. Deficiency of haemoglobin — lack of iron intake.
2. Lack of red cells.
3. Loss of blood by bleeding.

Of these the first is most common and is seen with malnutrition of all grades.

Estimate degree of haemoglobin deficiency, give Ferrous Sulphate 200mg daily and Folic acid 0.5mg. The child must eat green vegetables.

In children with anaemia you will look for and think of:

1. Nutritional deficiencies.
2. Tuberculosis.
3. Loss of blood in stools or other evidence of bleeding.
4. Signs of infestation: Hookworm or trichuriasis.
5. Malaria.
6. Enlargement of liver, spleen, lymph nodes.

If no response to iron and feeding further investigation is required.

Government issue tablets with 20mg elemental iron and 0.5mg folic acid.

Dosage for children:

	Prophylactic	Therapeutic
up to 2 years	$\frac{1}{4}$ tab twice daily	$\frac{1}{2}$ tab three times daily
2—5 years	$\frac{1}{2}$ tab twice daily	1 tab twice daily
over 5 years	$\frac{1}{2}$ tab twice daily	1 tab three times daily

5.2.5.5. Deficiencies of Vitamins A, B, C, D.

Vitamin A.

Trachoma and Vitamin A Deficiency are the commonest causes of blindness in children. About one in ten of all children under five years suffers from this deficiency.

Signs best seen in eyes:

1. Change in lustre in the conjunctiva and folds of conjunctiva at the outer canthus (xerosis).
2. Pigmentation in the conjunctival gutter.
3. Bitot's spots, white and raised, lateral to the sclero-conjunctival junction at 3 o'clock (left) and 9 o'clock (right) positions.

Children have night blindness. Ask about it.

They avoid the light in daytime.

4. Changes in the cornea come after those in conjunctiva; at first looks dull and in severe cases becomes soft. Perforation and infection can occur and the cornea is scarred or destroyed.

Prevention and treatment.

Green leafy vegetables, carrots, yellow fruits like mangoes and papaya are cheap and supply Vitamin A requirements. Under the National programme for the prevention of blindness all children from 1–5 years of age should have 200,000 units of oily Vitamin A solution every 6 months. Given by health workers or at the PHC.

The treatment of a child with xerosis, night blindness, Bitot's spots, is to give 200,000 units Vitamin A in oil daily for four days. If Keratomalacia has developed give 100,000 units of water soluble Vitamin A by injection followed by 200,000 units in oil orally for four days.

If the child has diarrhoea give 4 injections of 100,000 units aqueous solution Vitamin A on alternate days.

Children with corneal involvement need urgent care.

Locally apply atropin ointment and oily antibiotic ointment or eye drops to help to prevent the development of anterior synechia.

Vitamin B Complex.

Vitamin B. Thiamin deficiency causes beri-beri. Rare in India. Seen in populations who eat polished rice. May occur in infants of mothers deficient during pregnancy.

1. The central feature is heart failure, with breathlessness, rapid heart and swelling of hands and feet, may resemble pneumonia — onset rapid.
2. Lesser degrees have muscle tenderness, pins and needles and loss of peripheral reflexes.

Treatment.

50mg by injection or by mouth (second best) then 10mg daily by mouth for two weeks. Give pulses and vegetables.

Riboflavine: Deficiency causes cracking at angle of mouth; lips red, swollen and cracked. Tongue bright red, smooth and painful.

Nicotinic acid: Deficiency causes pellagra; the skin on exposed areas — hands and feet — dry and cracked and itches. Tongue is fissured and sore.

Treatment.

Vitamin B (complex). Food must include vegetables and nuts; milk is rich in Vitamin B.

Vitamin C. Not common in India.

Absence causes scurvy.

Signs: Bruising of skin, bleeding soft gums. Bone tenderness due to subperiosteal bleeding. Child refuses to walk and cries if limbs are touched near joints.

Vitamin C is present in all milks and green vegetables but is destroyed by boiling or cooking. Deficiency avoided by eating fruit (oranges, limes, etc.) and green vegetables.

Treatment.

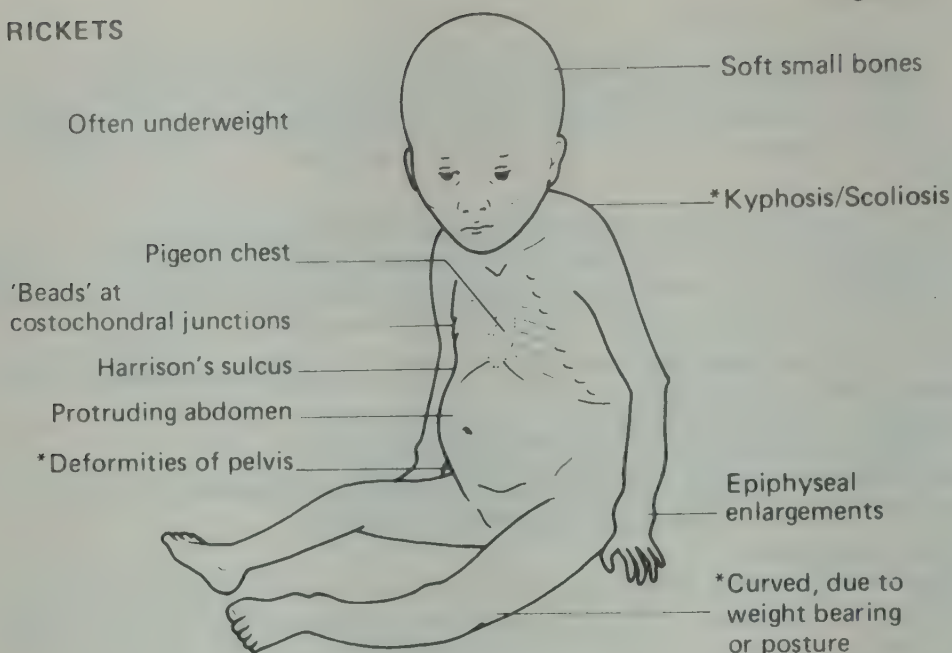
Vitamin C by mouth 200mg.

Vitamin D.

Vitamin D is obtained from food or by sunlight on the skin. Necessary for bone formation: shortage affects the deposition of calcium at the growing

Figure 9

RICKETS



*Potential sequelae following florid rickets

zones and in the shafts of long bones. Bones fail to grow in length and osteoid tissue accumulates at epiphyses.

Signs of deficiency (rickets, Fig. 9) most likely to occur during rapid growth:

1. Enlargement of epiphysis best seen in ribs and at wrists, less easily in ankles.
2. Bending of bones due to loss of rigidity: bending is the result of posture if the child is mostly sitting; the tibia bows outward if the child is walking. The ribs being soft may bend to form a depression both sides of the chest (Harrison's sulcus) particularly if there is upper respiratory obstruction.
3. Muscles, soft, flabby and weak.
4. Some children have convulsions or muscle irritability (tetany) associated with low blood calcium.

Most frequent in second and third years. Incidence possibly 5 per cent of children between one and six years but clinical diagnosis tends to over-estimate the frequency. When in doubt treat as deficient.

Treatment:

Calcium lactate and 1000 units Vitamin D daily by mouth for three months unless urgency then single large dose of 600,000 units by mouth or injection.

If rickets are found examine other children in family. When rickets occurs as a family disease it might not respond to even large doses of Vitamin D (Vitamin D resistant rickets).

5.2.6
5.2.6.1
5.2.6.2

5.2.6. Common Infections.

5.2.6.1. Introduction.

The newborn and young child has not developed resistance to organisms found in the environment of his family. He gets antibodies to some infections from his mother (e.g. measles and diphtheria) if she has had these infections; some come through the placenta and some through the breast milk and they give some protection in the first few months. But from birth onwards he meets infections with bacteria and viruses and only slowly develops his own resistance. One attack of some infections, e.g. diphtheria, immunises for life but others, e.g. respiratory viruses, give only temporary protection.

The defence mechanisms operate in different ways, some locally as in the gastro-intestinal tract and some by the production of antibodies, e.g. diphtheria. They work most effectively if the child is well nourished. Poor nutrition weakens resistance and infections of many kinds are more damaging and more likely to spread in ill nourished children.

In some infections the precise cause can be recognised from the character of the illness (e.g. measles and whooping cough). In others only the tract involved can be identified on clinical grounds (gastro-intestinal infections and acute respiratory infections) for many different agents can cause similar illnesses. In these the precise cause cannot be determined without laboratory investigations which may not be practicable in the rural situation.

Infections with bacteria, viruses and parasites reach the child from many sources; by droplet infection from other children or adults in respiratory illnesses, from water, food, feeding utensils or vessels, flies or fingers in intestinal infections; through the skin as with the infestation by certain parasites, by contact with animals. The child may even be infected before birth with organisms from the maternal blood stream — rubella virus, tuberculosis, syphilis.

Infection increases food requirements and may precipitate signs of malnutrition: infection may also reduce intake of food because the child is unable to eat or the parents are unwilling to give him food because they fear it will do harm.

5.2.6.2. Intestinal tract

Infections characterised by **diarrhoea** are uncommon when the baby is fed entirely from the breast. Diarrhoea and repeated intestinal infections and malnutrition go together.

Diarrhoea: The passage of frequent loose or watery stools; sometimes with vomiting, sometimes with colic pain; mucus or blood may be seen in the stools.

There are four groups of conditions associated with diarrhoea in children. They may be difficult to separate and indeed more than one can occur in the same child.

1. Infections in the intestinal tract. Often due to bacteria found in the alimentary tracts of adults and strains of organisms found in the immediate environment. Infection is carried from faecal sources (older children and adults) by flies and fingers to the vessels or cups from which food is given, or direct to the fluid and foods. Parents usually do not understand the microbial origins of disease or the chain of contamination causing it. Many foods, e.g. milk, allow organisms to grow quickly.
2. Parasites — *Gardia Lamblia* and after infancy *Ent.Histolytica*.
3. Infections outside the alimentary tract which cause intestinal hurry; these in young children are usually respiratory, acute otitis media or tonsillitis.
4. In young children especially those with malnutrition; absorption is poor and food with much roughage and fibrous material can cause intestinal hurry and the passage of stools with mucus. Food may then be reduced further so that malnutrition becomes worse.

For descriptive purposes **diarrhoea** is best considered as acute (most likely infective) or chronic (post infective, poor absorption or parasitic).

The Child with Diarrhoea.

The most important thing you can do to reduce the number of deaths and the cases of severe dehydration is to teach everyone, Female Health Workers, Village Workers and mothers and fathers that treatment (that is fluid replacement) must begin when diarrhoea — i.e. loose watery stools first occur.

Fluid replacement.

Begin as soon as possible, that is after the child has the first loose stool. Use the electrolyte, mixed as described in 6.2.6.1, and make sure it is available in each village and to every mother. This means that it must be available from the Female Health Worker and the community village worker and that everyone must know how to use it to prevent dehydration.

Teach mothers to give one cup or glass of fluid for each loose stool, to begin before they seek help and to continue until help is obtained. If that can be done done, severe dehydration will be avoided in many cases and many lives saved.

Most cases can be treated by fluid replacement by mouth if this begins promptly (6.2.6.1).

First assess the degree of dehydration (water and salt loss). Much fluid can be lost before the child shows any signs and then as further loss continues signs develop rapidly. Three stages are described yet the mild and the moderate rapidly merge. The following helps you to assess the child's condition.

Stages of Dehydration.

	Mild	Moderate	Severe
Child's appearance	alert, thirsty, drinks eagerly	restless, thirsty,	quiet and limp even unconscious
Skin elasticity	normal	recovery slower than normal	inelastic, stands in ridges
Mouth	no free saliva	tongue dry, wrinkled	tongue dry, lips dry
Eyes	normal	slightly sunken	dull and sunken
Radial pulse	raised rate	raised and weak	weak or absent (feel for femoral pulse)
Urine	normal	reduced	little or none
Breathing	normal	may be acidotic	slow deep acidotic

Remember:

1. Babies and young children cannot say they are thirsty.
2. Skin elasticity depends in part on the amount of underlying fat. Marasmic babies with little fat have poor elasticity.
3. Return of good urinary flow is a good sign.

Mild and moderate dehydration (often with Marasmus).

Most can be treated with oral or intragastric replacement solutions.

Use:

1. Oral rehydration salts. Prepared in polythene packets (Fig.27).

Composition: Sodium Chloride 3.5 g
 Potassium Chloride 1.5 g
 Sod. Bicarbonate 2.5 g
 Glucose 20.0 g

One packet in 1 litre clean drinking water (4 glasses). For preparation and use (6.2.6.1).

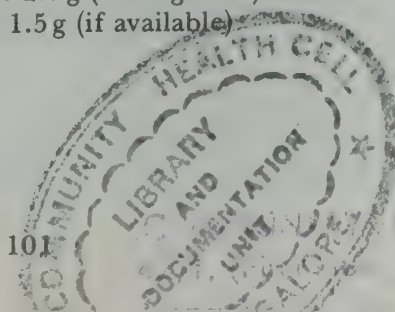
or

2. Glucose – Salt Solution.

Dissolve in 1 litre of drinking water:

Sodium Chloride 3.5 g (table salt)
 Sodium Bicarbonate 2.5 g (baking soda)
 Potassium Chloride 1.5 g (if available)
 Glucose 20.0 g

For preparation and use (6.2.6.1).



or

3. Other fluids (6.2.6.1).

Quantity: 120ml/kg body weight usually enough for hydration: give in 6 hours equally spread in half-hourly amounts, spoon, feeder or cup. Show mother.

Reassess after six hours: look for improvement in mental state, vomiting, skin elasticity, passage of urine.

If improved — breast feeding or half strength milk.

If unchanged — continue and reassess.

If worse — continue fluids by intragastric tube.

When rehydration is properly started **look for infections which require treatment.**

If you suspect cholera, give tetracycline by mouth as soon as possible; 250mg 12 hourly for three days. Inform district authorities and collect specimen.

If stools contain blood and mucus and child has tenesmus, think of dysentery (or amoebiasis) also treat with tetracycline or sulphonamide, 150mg/kg body weight in 24 hours (max. 3g).

If signs of pneumonia, otitis media, tonsillitis, treat with suitable form of penicillin.

Malaria — especially if fever and enlarged spleen — treat for malaria (5.2.6.4).

Convulsions or unconsciousness: paraldehyde for convulsions and aspirin for fever: think of meningitis, L.P. may be necessary.

High fever: sponging and aspirin unless child under one year.

Give the very ill child without clear signs of a particular infection procaine benzyl penicillin and ampicillin: if not available, procaine penicillin and tetracycline or chloramphenicol.

Intragastric fluids.

Patients unable to take oral fluids or if vomiting. For passage of tube (6.2.6.2) Give same amount of fluid as by mouth, assess after six hours.

Severe dehydration and intravenous fluid replacement..

Children who do not respond to oral or intragastric fluids or those severely dehydrated when first seen need intravenous fluids (techniques 6.2.6.3, 6.2.6.4, 6.2.6.5).

While preparing for infusion record pulse and respiration, weigh child, record size of liver, examine chest for basal crepitations.

In very severe shock two veins may be necessary initially. Regulate and record volume and type of fluid, speed of drip.

How much fluid: Total 120ml/kg body weight in six hours, give half in first hour and rest spread over five hours. This should replace deficit. Then 70ml/kg body weight given over next 18 hours (i.e. 4ml/kg each hour).

Reassess regularly: more fluid may be required, rate of drip may change or errors of volume occur. Continue till rehydration is complete and patient taking by mouth.

In the PHC: Biochemical estimations of electrolyte changes not possible. Normal saline and 5 per cent glucose should both be available and in some centres Ringer lactate solution also. Do all you can to have ampoules of Sodium

Bicarbonate (7.5 per cent) and Potassium Chloride (15 per cent, 1ml = 2mEq); for dehydrated infants are both acidotic and hypokalaemic. The dehydration is nearly always hypotonic or isotonic.

A common example is a child of one year weighing about 8 kg with severe dehydration; about 2000 ml of fluid are required in 24 hours — about half of it in 6–8 hours.

If the above solutions are available you can begin with 20ml Ringer lactate per kg in the first bottle, then:

Second bottle (always mix bottles under sterile conditions)

Glucose 5% 400ml

Normal saline 150ml

Sodium Bicarbonate 30ml (30mEq)

Third bottle

Glucose 5% 400ml

Normal saline 100ml

Sodium Bicarbonate 20ml (20mEq)

Potassium Chloride 8ml (or 16mEq)*

**Do not give Potassium Chloride until urine has been passed.*

Fourth and Fifth bottles

Glucose 300ml

Normal saline 100ml

Potassium Chloride 6ml (or 12mEq)

Speed of infusion:

First hour 50ml kg/body weight

1–5 hours 10ml kg/body weight per hour

Next 12–24 hours 3–4 ml kg/body weight

When using these fluids, the glucose salt solution by mouth or tube should replace intravenous as soon as possible. Begin after 24 hours.

Sodium Bicarbonate and Potassium Chloride are important and you must try to have them but if they are not available and you have no Ringer lactate give Glucose 5% (2 parts) and Normal saline (1 part) in the first bottle and then Glucose 5% (3 parts) and Normal saline (1 part) in the remainder of the required fluid.

Review during fluid replacement.

With adequate fluid replacement, mental state improves, patient passes urine, skin becomes warm and pulse improves. Vomiting ceases, begins to take small amounts oral fluids. If fluid is given too quickly or too much respiratory rate increases, liver enlarges, eyes puffy, basal crepitations in chest: if found, reduce rate of fluid infusion and reassess often. If too little is given he will remain dehydrated.

Intraperitoneal infusion.

If intravenous therapy cannot be carried out, intraperitoneal infusion (6.2.6.6) may save life. 70ml kg/body weight. Half strength Ringer lactate or mixture equal parts saline and glucose in water is given in 10–15 minutes.

After rehydration, oral feeding is started with small frequent feeds of dilute milk mixtures. Purpose to give calories and protein without recommencement of diarrhoea. If baby is breast feeding, continue. Aim to give 125ml/kg body weight daily for first four days, at first divided into 8 and then into 6 feeds in

the twenty-four hours. For the first one or two days half strength milk feeds and if taken well, full strength feed can be given made from any suitable milk or preparation as given in 6.2.2.6.

When a malnourished (marasmic) child recovers from the immediate attack of diarrhoea and is again able to eat, you must try to help him return to, or achieve for the first time, a satisfactory growth level. The important thing is to provide sufficient food; it is calorie (energy) intake which is important.

If there is a nearby nutritional rehabilitation centre, try to get the child and his mother there — you might have been able to establish one in your own Block with local workers (6.2.2.8). If not, provide and teach the mother to make weaning foods (6.2.2.7).

Recovery.

Even on a high calorie intake after rehydration the patient's weight might not increase for a week or more. But so long as his mental state, interest and alertness is improved, he takes the required amount of food, and there is no vomiting or diarrhoea, this is not a cause for alarm.

When the child is taking food well he should be given by about the 9th or 10th day 160ml high calorie feed per kg body weight each day. This can be given in 6 or 5 feeds in the twenty-four hours, depending upon the age and size of the child. Introduce locally available foods about the third week and continue the high calorie feeds while the transition to usual food is occurring. Make sure the child is given sufficient food to produce a rapid weight gain (up to 70g per kg body weight a week).

Children with marasmus (energy malnutrition) also need:

1. Potassium. Give Potassium Chloride by mouth, 7.5g KCl in 100ml of boiled drinking water, 4ml per kg body weight each day for two weeks will replace loss (solution contains 1 mEq K per ml).
2. Iron and Folic Acid tabs 2 daily (UNICEF).
3. Vitamin A deficiency can develop (5.2.5.5), if it is endemic in area treat to prevent its onset.
4. Ascorbic Acid or fresh fruit juice — assist healing and absorption of Iron.

During recovery look for any signs of tuberculosis (5.2.6.4), scabies (5.2.7), thrush (8.3.16.15), infestations (5.2.11). Plot weight gain.

If child does not respond, check food and feeding, preparation and intake. Is mother or attendant patient and good with child's feeds. Missed infections (as above). Is child warm enough, especially at night? Is maternal emotional care sufficient? Is child interested in people and surroundings? Does he play?

Try to keep child and mother in touch with village worker or with health worker for regular follow-up attendance at 'under fives' clinic. Teach mother about foods and test that she can and will give sufficient food.

Chronic diarrhoea.

Persistent diarrhoea very common. Many mothers seem to accept 3–4 stools a day as normal. It is associated with and causes malnutrition, commonly in toddlers with rectal prolapse. Chronic diarrhoea can be caused by secondary malabsorption of fat or sugar after repeated acute infections. Other common causes are giardiasis, hookworm, ascariasis or trichuriasis in areas where these

parasites are found. Worms may have been seen in the stools (5.2.11). Amoebiasis also occurs and is associated with blood and mucus in stools.

Metronidazole is given for giardiasis and amoebiasis, 15–20 mg/kg/day divided in three doses for seven days, the course may need to be repeated. For round worms and thread worms give a single dose of Piperazine (1–3g). If chronic bacterial infection is suspected then Furoxone suspension can be given if available.

In cases of chronic diarrhoea much information can be obtained from careful microscopic examination of faeces (6.2.4.2).

The general nutritional state must be watched as closely as possible.

Abdominal hernias.

Hernia through the abdominal wall in children is commonest at the umbilicus. Particularly marked with poor muscles in malnutrition: hernia usually occurs through the umbilical scar but can come through gap in fascia above umbilicus: protrudes most when the child is crying: although noticeable do not cause pain or obstruction. Most disappear as the child becomes older.

Inguinal hernias are also common in boys (occasionally in girls). In boys descend in the line of the cord and may enter scrotum. They may be present intermittently or constantly, and are important because they can become obstructed causing pain and vomiting: if obstruction persists they may strangulate.

If any hernia becomes obstructed, the swelling becomes tense, painful and cannot be readily replaced in the abdominal cavity. But the symptoms may be abdominal pain and vomiting and **unless the hernial sites** are examined, the cause of the symptoms will not be discovered.

Many obstructed hernias will reduce if the child is given a sedative and his legs are raised to allow the contents of the hernia gradually to return to the peritoneal cavity. Once the child is sleeping and the tension is relieved, gentle pressure along the line of the inguinal canal will often effect reduction. If symptoms of obstruction increase and tenderness remains, the hernia is irreducible and the child must be sent to hospital.

Femoral hernia is very uncommon. Arises from below the inguinal ligament.

Intussusception.

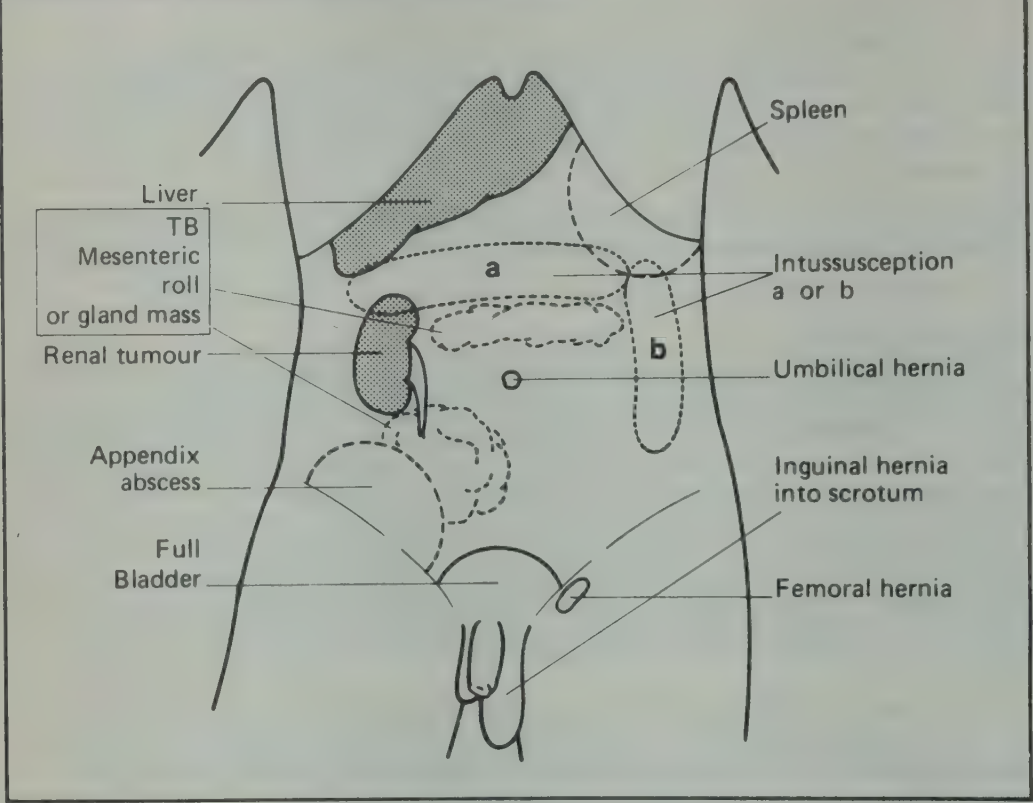
Sometimes the bowel folds in on itself, usually small bowel into large. The child has pain and screams, vomits, later may pass blood and mucus: a long mass may be felt across abdomen (Fig.10). If left obstruction becomes complete. Send to hospital. See also 5.2.12.9 for abdominal emergencies.

5.2.6.3. Respiratory tract.

Upper respiratory infections are common. In the first five years infections spread down causing bronchitis or pneumonia: the lower the infection spreads the more serious it becomes.

Lower respiratory infections are important both as a cause of death and the risk of permanent damage if a collapsed lower lobe becomes bronchiectatic.

ABDOMINAL MASSES AND HERNIAL SITES



Various syndromes occur. Although the recognition of a syndrome does not give a precise indication of the infecting organism, you as a doctor should know when a child needs antibiotics. The common upper respiratory infections do not: lower respiratory infections involving the lungs do so urgently. All health workers must learn to recognise the child, especially the baby, with the serious infection.

A useful clinical grouping of acute respiratory infections is:

1. 'Colds' mild or severe. The mild cold is simply a watery nasal discharge, sometimes purulent, lasting 3–7 days: there is no general disturbance of health. With a severe cold children are hot and cross, sleepy and refuse to eat. Nasal discharge is more likely to be purulent. Some children vomit or have diarrhoea and abdominal colic. The attack usually lasts about ten days but sometimes nasal discharge, clear or purulent, goes on for weeks. Treatment of colds; without fever or constitutional disturbance, chemotherapy is not necessary. Make sure the child's nose is not blocked, especially when he goes to bed. For fever give paracetamol or aspirin and if evidence of bacterial infection e.g. green nasal discharge with constitutional upset then sulphonamide, penicillin or other antibiotic.

2. Tracheitis. Acute tracheitis or croup comes on at night after the child has been slightly unwell during the day: he develops a loud cough and may also have marked respiratory obstruction causing great distress and recession of the lower chest wall. The same appearance may be caused by laryngeal diphtheria. Treatment is warm vapour or steam kettle if this is possible. The infection is usually a virus but is sometimes Haem. Influenzae. If the child is very ill, chloramphenicol may be effective.
3. Acute bronchitis. Cough is the most prominent feature of bronchitis with fever and some general upset. Bronchitis often follows a week of 'acute cold with running nose'. Cough is always present and more frequent and louder than in pneumonia. Breathing is more rapid than usual and about half the children with acute bronchitis have wheezing during the onset of the attack. As the wheezing disappears in 24–48 hours the cough becomes loose and moist sounds can be heard over both lungs. The illness is usually over in about ten days. When the child has bronchitis other members of the family may have 'colds'. Although febrile and disturbed the children have not the marked degree illness as in pneumonia. This type of bronchitis is most common in children over a year of age.

Children with acute bronchitis with constitutional disturbance and fever should be given sulphonamide or Inj. penicillin. Procaine penicillin should be used and if a further injection cannot be given in 24 hours, long-acting penicillin (Benzyl penicillin) should be given at the same time.

Acute Bronchiolitis. Young children can suffer from a particular type of infection due to Respiratory Syncytial Cell virus. The attack begins with wheezing. As the walls of the small bronchioles become swollen, air is trapped distally overfilling the lungs and making the chest appear overdistended. Little air moves in and out of the chest despite the infant's efforts with full movements of the diaphragm and the accessory muscles. Since little air is moving little can be heard with a stethoscope. For the same reason the child is short of oxygen and may go into heart failure. The treatment of this condition is not antibiotics but oxygen and broncho-dilators (Aminophylline). If possible, the very ill child should be nursed in oxygen and fluid given intravenously.

4. Bronchopneumonia. Descending infection can reach the lungs especially in malnourished children. It is the severity of the illness rather than the physical signs in the chest which is important. Cough is always present, often frequent and harsh, but in weak children is feeble, breathing is rapid; lips may be pale or blue. Appetite lost but thirst great.

Pneumonia also occurs in measles and whooping cough (5.2.6.4).

Most important signs are fine moist sounds (crepitations) heard best at base of lung at the back. Condition serious and treatment urgent. If the child can be taken into hospital then he can receive oxygen and intravenous fluids as well as antibiotics. Give sulphonamides by mouth or Crystalline penicillin (Benzyl penicillin) by injection. If the patients are in their own homes or in villages away from the Health Centres, then a mixture of long-acting Procaine penicillin and Benzyl penicillin should be used to give a high initial blood level followed by the release of Procaine penicillin. Injection needed each twenty-four hours.

5. Wheezing attacks. Distinct from the attacks of bronchitis with wheezing some children have attacks of bronchospasm and the parents complain of the child's wheezing. In these situations the possibility of foreign body must be considered and also of tropical eosinophilia. Look for a sensitising agent and use bronchodilators in doses which give relief.

Suspicion of a foreign body are usually aroused by the history and then by the constant gentle inspiratory wheeze.

Tropical eosinophilia is not common in children. The chief symptoms are bouts of dry hacking cough and wheezing at night. Rhonchi are heard in chest. Examination of peripheral blood for eosinophilia assists the diagnosis. If eosinophilia is found Diethyl Carbamazine Citrate 15mg/kg/day for two weeks. Recurrence might occur.

Tonsillitis and Otitis Media.

Acute tonsillitis is common in the first five years of life, infection may be Streptococcal or viral and both must be distinguished from diphtheria. In acute streptococcal tonsillitis the child has fever and sore throat, enlarged and tender tonsillar nodes and bright red and swollen tonsils, the surfaces of which are often covered with purulent spots or yellow-green exudate. In virus tonsillitis fever is often higher but the throat and nodes are not so painful. The tonsils though enlarged are not inflamed. The surfaces may show greyish patches of exudate or small ulcers where the surface exudate has separated. In diphtheria the child is more ill and the membrane is white (5.2.6.4).

Tonsillitis due to streptococcal infection is important because it may be followed by acute rheumatism or acute nephritis. Streptococcal tonsillitis responds very well to Penicillin by injection or by mouth so long as sufficient is given. It reduces the risk of rheumatism. Give plenty to drink as long as the throat is painful and then recommence food as soon as possible.

Acute Otitis Media often accompanies acute tonsillitis or pharyngitis and if streptococcal this will respond to Penicillin. Treat until the drums are normal. Infants with otitis media cannot localise their pain or indicate where it is: they cry, will not sleep or rest and may vomit: on examination with a speculum the ear drums are bright red and may be bulging — once rupture occurs pain is less — discharge is purulent and bloodstained. When children are 2—3 years old they hold their ears, cry and indicate the origin of the pain. The drums must always be examined. Chronic otorrhoea causes deafness and must be treated with care until discharge ceases and drum is healed. Otorrhoea which does not cease after antibiotics needs examination by ENT surgeon.

5.2.6.4. Acute infectious diseases.

Whooping Cough (Pertussis).

An infectious illness transmitted from child to child commonest in the first seven years. It is most infectious in the early stage of nasal discharge. Caused by a specific bacterium the illness has an incubation period of 21—26 days if the time of the first whoop is taken and about one week shorter if the coryzal period is included. The earliest signs are cough and nasal discharge. The cough increases becomes paroxysmal and paroxysms grow longer and louder. The nasal discharge disappears. The paroxysms consist of a succession of expiratory hacks

during which the child's face becomes congested, then, after a pause, the child takes a long whooping inspiration. After the whoop vomiting of ropy mucus or food is common. During the day spasms are brought on by excitement or activity and they are more violent during the night. Between spasms the child appears well and unless there is pneumonic involvement of the lungs, the chest is remarkably clear from abnormal physical signs. The duration of the illness is variable but after 4–8 weeks it subsides and vomiting ceases though it may last as long as 12 weeks and the cough can return if the child gets another respiratory infection.

It is whooping and vomiting which are most distressing and lead to loss of weight; in poorly nourished children this can be serious and Kwashiorkor may develop.

No age is immune. Newborn babies can be infected and develop a spasmodic cough within three weeks. In very young babies attacks of apnoea are common and dangerous; young babies may not whoop and the condition is suspected by the character of the cough. But vomiting is common and weight loss may be dangerous. The first six months of life are the most dangerous time for whooping cough and the mortality is then considerable.

Antibiotics have no effect upon whooping cough unless used in the first week of onset, when Chloramphenicol is said to be beneficial. Use them only for bronchopneumonia. The most important thing is to maintain the child's nutrition by giving small amounts of food very frequently during the day, feeding after sickness and maintaining a daily intake as normal as possible for his age and weight. Cough may be reduced by Phenobarbitone and therefore vomiting is also less. It is particularly useful at night. Children under one can be given 8–15mg and from one to two years 15–30mg and over two years 30mg at night.

Complications: Loss of weight, pneumonia, skin or subconjunctival haemorrhages, interstitial emphysema neck and chest, convulsions, Keratomalacia. If recovery seems delayed, if the cough continues or if the child loses weight progressively think of tuberculosis. Whooping cough can be prevented or greatly modified by immunization (5.2.14).

Measles.

Infection with measles virus, immunity thereafter. Maternal transplacental antibody protects for first six months. Occurs in epidemics, affecting children to seven years. Highly infective during onset. Incubation period 10–14 days.

Onset: cough in first week then nasal discharge, injection of conjunctivae and nasopharynx. Koplik's spots on inner surfaces of cheeks (salt-rash). On 3–4 day rash appears behind the ears — then over face and downwards to the body and limbs. Rash: blotchy, does not fade on pressure, slightly raised, lasts 48–72 hours, disappears in reverse order to appearance. Rash due to viraemia.

Complications: Virus pneumonia most important. Otitis media. Encephalitis; at onset, during illness and up to three weeks later. Children who are malnourished at infection may develop deficiency signs such as keratomalacia or kwashiorkor. Children undergoing primary tuberculosis may get meningitis or miliary spread — think of tuberculosis if the child does not quickly recover after measles.

Treatment: Many traditional beliefs. Maintenance of food intake very important. Eyes bathed and drops, protect from light. Antibiotics only with acute otitis media or pneumonia.

Where malnutrition is common measles kills many children. Measles can be prevented by measles vaccine (5.2.14) but it is not yet generally available.

Rubella.

Virus infection in epidemics — gives permanent immunity. Incubation period 14–21 days.

Mild disturbance, slight headache and stiff neck with enlargement of occipital lymph nodes. Pink rash spreading over face, body and arms to legs. Smaller than measles, no coryza.

The importance of rubella is the effect which the virus can have upon the growing foetus. If a woman is infected in the first three months of pregnancy the foetus is likely to be affected and may be born with cataracts, deafness, congenital heart disease, damage to the central nervous system and mental retardation.

Varicella (Chicken pox).

Virus, incubation 11–21 days.

Onset: Temperature, unwell, headache and muscle pains especially in back. Rash comes first on body and face, also mucous membranes. Pink spots becoming thin walled blisters superficially on the skin. Fluid first clear soon becomes purulent, ruptures in 4–5 days to form scab. Rash out in crops; after two or three days spots are seen in different stages. Itchy at onset. Scabs separate after 1–2 weeks some leaving small depressed scars.

Differential diagnosis: Smallpox rash, distal on hands feet and face: spots deep, all come out together and may be umbilicated.

Complications: Occasionally encephalitis, mostly cerebellar signs. Outlook good.

Treatment: No specific. Local application lotion Calamine helps itching.

The virus of varicella can also invade spinal root ganglia to causes herpes zoster: children in contact with zoster develop chicken pox. Zoster infrequent in children.

Mumps.

Virus, incubation 14–28 days.

Onset: Fever and pain in jaw, swollen parotid glands. One side may swell before the other. Tender, pain on opening mouth, mouth of parotid duct red. Submental and submandibular lymph nodes may enlarge. Swelling subsides in 5–10 days.

Differential diagnosis: Make sure tonsils and pharynx are normal. Suppurative parotitis may occur in malnutrition or in very young infants.

Complications: Mumps meningo — encephalitis with drowsiness, stiff neck, simulating acute bacterial meningitis. May occur before the swelling of face. CSF shows lymphocytosis. Orchitis, painful swollen testes — later may become small — rarely before puberty. Girls occasionally mastitis or pancreatitis. Central abdominal pain above umbilicus, vomiting, tenderness. Outlook for all complications good.

No specific treatment.

Diphtheria.

Caused by *Corynebacterium Diphtheriae*. Spread: droplet infection by contact with patient or carrier. Children under five mostly affected. Incubation 2–4 days. Several types.

Tonsillar: Child ill, grey membrane often spreading to nearby mucous membrane, removal causes bleeding. Nodes in neck very swollen but not acutely tender; toxæmia, rapid poor volume pulse.

Nasal: Blood stained discharge and raw skin of nostril and upper lip. Child may not be ill but a carrier and infector.

Laryngeal: Formation of membrane causes laryngeal obstruction. If extensive or secondary to tonsils then toxæmia present as well as obstruction. Obstruction to respiration dominates picture and asphyxia the danger (6.2.9.5).

Skin: Diphtheria may also affect surface wounds or ulcers without causing illness until complications follow.

Complications: Toxin affects heart muscle in early acute stage with rapid onset heart failure or, in second week, child restless and pale, rapid heart, low BP, fainter heart sounds. Toxins may also affect conducting tissue to give irregularities or slow heart. Recovery slow but complete.

Post diphtheritic paralysis in third week, most common in palate so that voice becomes nasal and fluids may come down the nose on swallowing. Any other peripheral nerves may be affected, most important are those supplying swallowing and breathing — intercostals and diaphragm may both be involved.

Recovery is slow but complete if the child escapes asphyxia and heart failure in the acute phase.

Differential diagnosis:

1. Acute streptococcal tonsillitis.
2. Vincent's angina of mouth and throat.
3. Onset of infective mononucleosis (glandular fever).
4. Widespread thrush.

Treatment:

1. Child at rest.
2. Antitoxin to neutralise circulating but unfixed toxin. Dose of antidiphtheritic toxin (after sensitivity test) 20,000–60,000 units depending upon the extent of the lesion and the condition of the child.
3. Penicillin to remove organisms at site of infection: Procaine penicillin daily injection 600,000 units or if patient is sensitive then Erythromycin 40mg/kg body weight by mouth each day.

For obstruction:

1. If child is not cyanotic steroids will help.
2. Intubation under direct vision.
3. Tracheotomy (6.2.9.5).
4. Respiratory difficulties may need respirator if available.

Diphtheria can be prevented by immunization which should be given as widely as possible to young children beginning in the first year and followed by booster doses at two and five years (5.2.14).

Tuberculosis.

Infection with tubercle bacillus, inhaled from adult or sometimes older child with progressive lung disease. After infection, small primary focus in lung and enlarged regional lymph nodes. May be accompanied by fever but no specific signs except vaguely unwell, poor appetite, weight stationary or falling, palpable spleen or liver.

After 6–10 weeks child becomes sensitive to tuberculin unless malnourished; skin test reaction of 8mm or more of induration to 1 TU (Tween 80) PPD, or 5 TU without Tween 80 is significant (6.2.5). Smaller reactions or absence of sensitivity does not rule out tuberculosis if the child is undernourished.

Both focus and nodes enlarge if resistance is poor as when child is young, ill nourished or has other infections, especially measles, whooping cough, chronic diarrhoea or streptococcal tonsillitis.

If this stage is recognised or suspected the child given Isoniazid. When INH is given improvement is usually rapid if he is getting sufficient food.

Complications occur as a result of extension of:

1. Primary focus.
2. Regional lymph nodes.
3. Spread of bacilli in the blood stream.

Most complications occur in the first year after infection, less in second year, but bone and kidney complications and disease in the lungs can occur years after primary infection unless treatment is adequate.

Complications from primary focus:

1. Enlargement and rupture into pleural cavity — effusion.
2. Enlargement and rupture into bronchus — progressive spreading lung disease sometimes with cavitation.

From regional nodes:

Enlargement to erode into a bronchus with the formation of a segmental lesion in the area of lung distal to the erosion. This does not give physical signs except cough. Nodes may also discharge bacilli into the blood stream.

Complications spread by blood stream:

1. If spread is heavy, clinical miliary disease results with wasting, fever, enlargement of liver and spleen and cough as the disease advances. It is fatal unless treated.
2. A small tuberculous deposit in the brain may rupture into the subarachnoid space. Tuberculous meningitis follows. The onset is slow with headache, vomiting and neck stiffness until meningitis is fully developed. Only with treatment in the early stages can a complete cure be obtained (5.2.9).
3. Lesions can develop in any bone or joint from a few months to several years after infection. The signs are pain and swelling if joints are involved: weight-bearing bones most affected. Swelling and the development of an abscess if bones are affected without joint involvement.
4. Tuberculosis can develop almost anywhere and should always be suspected when unusual painless lesions are found.

5. Tuberculosis of the kidneys is not common in children until the age of eight onwards. It develops slowly. Signs — painless haematuria or sterile pyuria.
6. From the age of seven or eight onwards children begin to develop progressive pulmonary tuberculosis due to reactivation of disease first implanted at the time of the primary infection or as progressive primary disease.

Diagnosis in children: First suspect tuberculosis.

Important ways of onset: Gentle inspiratory wheeze and harsh cough; failure to gain or loss of weight without marked physical signs; enlargement of liver or spleen; abdominal distension and free fluid; painless enlargement of cervical or other lymph nodes; slow enlargement of a joint, pain on weight bearing; stiffness or pain in the spine. Use of the tuberculin test (6.2.5). Examination in hospital if necessary and possible.

Always think of tuberculosis with unusual lesions especially if painless and slow to change or if children do not recover quickly after measles, whooping cough or other illness. Children can be protected from the most serious effects of primary tuberculosis infection by BCG vaccination (5.2.14).

Treatment: Depends upon the condition of the child when first seen. If not acutely ill and diagnosis is suspected but not established then a therapeutic trial can be tried. Give doses of INH 15 mg/kg of average weight for age and, if possible, ensure food intake, watch result. If the child has primary tuberculosis clinical improvement will be obvious within a month. INH can then be given for at least one year and if possible for two.

If the diagnosis is established, give INH combined with another drug which can be taken by mouth; PAS or Thiacetazone (5.2.9). Follow a one dose a day regime.

When the child is ill and the diagnosis of tuberculosis has been made the treatment depends whether or not he can be taken to hospital, the distance and the mobility of the parents and whether or not both parents are working.

If children are symptomatic or ill, then two drugs should be given for three months or until the acute phase is over; INH and PAS, INH and Streptomycin (5.2.9).

See the child gets sufficient food, help the parents, teach them about the risks and the reasons for the long treatment.

Streptomycin should be reserved for children who have progressive disease in the lungs, miliary tuberculosis or meningitis, bone and joint disease. It is not necessary for children passing through their primary infection when the objective of treatment is to prevent seeding of haematogenous lesions and the development of major complications.

In summary:

Major complications of primary infections can be avoided if INH is given in a single dose by mouth each twenty-four hours for at least eighteen months and if possible for two years. Treatment is cheap and non-toxic. Pyridoxine is not necessary. Treat all tuberculin positive children (who have not had BCG) under 10 years.

Whenever you find a child with tuberculosis look for an adult infector within the family, first by examination of sputa, and then by reference to the TB service or to hospital.

Families must be taught about infection and the possibility of illness long after the infection first gets into the body.

You must work with those responsible for the Tuberculosis programme and arrange for consultation sessions at intervals in your PHC.

The most important method of diagnosis in adults, **Examination of Sputum**, must be effectively organised in the health centre so that health workers may bring in specimens from villages.

The four most important things you can do in a PHC about tuberculous children are to make sure that:

1. Children have BCG and the vaccination is efficiently done (5.2.14).
2. Children passing through primary infection are recognised and have INH daily.
3. The examination of the sputa of adults suspected of tuberculosis or with a cough of more than one month's duration is done efficiently and as frequently as necessary.
4. Ensure that infective adults are fully treated.

If there is an open case of tuberculosis in the family then children should be protected whilst the adult is under treatment and until his or her sputum becomes negative. If the children receive INH by mouth once a day then if they have been infected complications will be prevented. If they have not been infected they will be protected until they get BCG when the infector is no longer sputum positive. BCG cannot be given first as INH will kill the organisms and destroy the efficiency of the vaccination. Infected children will be treated as already described.

If a baby is breast fed and mother is found to have tuberculosis then breast feeding must **continue** whilst the mother is treated. The baby is given daily INH. When the mother's treatment is finished or she has become sputum negative the child's INH prophylaxis is stopped and BCG given.

Leprosy.

In endemic areas the disease is not uncommon in children. Cases may be found below five years of age and prevalence increases rapidly in the school years. Cases are most likely to occur after exposure to infection at home and risk varies according to the type of leprosy in the adult — lepromatous cases are the most infective but the path of infection, through nasal mucosa or skin intact or after injury, is not yet established.

Diagnosis is by examination of the whole skin area, at least 80% have skin lesions, only about 10% nerve enlargement and the other 10% both.

Skin lesions: single or multiple, mostly on limbs, the lesion is a flat hypopigmented macule or a thick erythematous patch (tuberculoid leprosy) with loss of superficial sensation within it. Thickening of cutaneous nerves may be found. Lepromatous leprosy is uncommon before 15 years: lesions are not anaesthetic; diffuse infiltration of face, eyelids and limbs also uncommon before 15 years.

Diagnosis:

- a. Nerve involvement with impaired sensation in the area of skin supplied.
Nerve may be painful.

- b. Skin lesions — where endemic, suspect in any skin disease with macular lesions, nodules and infiltrated patches — test sensitivity of suspicious areas.

Prognosis: About 75 per cent of lesions developing in children will regress without treatment: tuberculoid and the flat hypopigmented areas respond to regular treatment. Lepromatous lesions disappear more slowly and scarring may remain.

Treatment: Same as in adult — Dapsone (oral) 150mg for child under 30kg and 200–250mg more than 30kg each week. $\frac{1}{4}$ dosage in first month, $\frac{1}{2}$ in second, $\frac{3}{4}$ in third, full dosage in fourth month. After resolution or inactivity, further treatment for three years in indeterminate cases and eighteen months in tuberculoid before release from control.

If organisms are resistant to DDS, Clofazimine 100mg daily or Rifampicin are effective. Both are costly and should not be given unless specialist advice has been obtained.

Protection: BCG not proven as a protective. Best hope is early treatment of infectious cases. Careful review of school children in endemic areas followed by examination of contacts of discovered cases. Give children in contact with infective cases prophylactic Dapsone (DDS) under 2 years 10mg, 3–5 years 25mg, 6–10 years 50mg, all twice weekly; continue dose 3 years after source case is not infective. Infants of infectious mothers continue breast feeding and treated as above.

Tetanus.

Infection of a new wound or chronic suppurative otitis media with tetanus bacilli or spores. Commonest in first month of life following umbilical infection but occurs at any age in unprotected children.

Signs:

1. Infant or child unable to feed or open mouth due to spasm of facial muscles.
2. Muscle spasm and stiffening.
3. Arching of back.
4. Hard abdominal muscles during spasm.
5. Cyanosis during spasms of respiratory muscles and larynx.
6. Fever.

Site of infection: Umbilicus, faecal contaminated dressing, or dirty cutting instrument used for umbilical cord, e.g. sickle, wood splinter or matchstick: dirt in ear with chronic discharge. Vaccination wound. Any deep narrow wound. Severity judged by interval from wound to onset of illness (shorter the interval the more serious the disease) and frequency of spasms.

Treatment: Injection Crystalline penicillin eight hourly for three days then Procaine penicillin once daily for one week. Sedation: Chlorpromazine 10mg/kg body weight in 24 hours IV; Diazepam 1.5–2mg/kg body weight in 24 hours IV; Phenobarbitone 8–10mg/kg body weight in 24 hours. Feeding and fluid by naso-gastric tube.

Tetanus avoidable and preventable.

- a. Cleanliness of umbilicus at birth — careful cutting and clean dressing.
- b. Two doses of toxoid to mother between 10–36 weeks of pregnancy at eight weeks interval.

- c. Protection of children with triple vaccine (5.2.14); and school children with Tetanus Toxoid, particularly those with chronic otitis media.

Malaria.

Incidence increasing. Only signs of infection may be fever and diarrhoea. Suspect in children with high or intermittent fever or with chills or rigors who have no signs of other infection — such as upper respiratory, tonsillitis or pyuria, and no localising symptoms except diarrhoea.

If the infection is endemic in your area the blood of children with fever should be examined for parasites. The male health worker will know where malaria is likely and must carry out his anti-malarial work efficiently. Malaria may also present by causing convulsions or unconsciousness: persistent vomiting, large spleen and paleness of anaemia.

Treatment: Chloroquine is given for one day on presumption. If proved then for one more day with Primaquine which is then continued for a further four days making six days treatment. Dosage in children: Chloroquine 150mg Tab 2 days: —1 year ½ tab, —4 years 1 tab, —8 years 2 tabs, —14 years 3 tabs; adults 4 tabs. Primaquine 2.5mg tab 5 days, first overlapping with Chloroquine second day: —1 year 1 tab, —4 years 2 tabs, —8 years 2 tabs, —14 years 4 tabs; adults 6 tabs.

Note cases and check on origin and anti-malarial precautions.

Rabies.

Caused by neurotropic virus present in the saliva of an infected animal and transmitted by bite or lick on broken human skin. Dogs, monkeys, foxes, jackals etc. may be infected. Incubation period varies considerably (ten days to one year) but usually one to two months. Bites on face or hand have short incubation period.

Clinically: Tingling around the site of the bite or break in the skin, restlessness, excessive thirst and fever. Patient soon becomes maniacal and has dysphagia and painful spasm of the oropharyngeal muscles on any attempt to swallow. Before death the patient develops convulsions, asphyxia and hyperpyrexia, sometimes flaccid paralysis and coma. Death usually occurs less than a week after the onset of symptoms.

Treatment: If animal is captured it should not be killed but observed for 10 days. If it remains alive at the end of that time the possibility of rabies is ruled out. If it dies the person should be treated with anti rabic vaccine. If the animal is not available for observation the patient should be treated with vaccine. Details of the use of BPL inactivated vaccine are given in schedules A and B as follows:

SCHEDULE FOR THE TREATMENT OF RABIES (A)

Nature of exposure	Status of the biting animal irrespective of previous vaccination		Recommended treatment
	At time of exposure	During next ten days	
Class I.			
Contact but no lesions; indirect contact or no contact.	Rabid	—	None
Class II.			
Licks of the skin, scratches or abrasions, minor bites (covered areas of arms, trunk and legs).	(a) Suspected as rabid	Healthy	Start vaccine. Stop treatment if animal healthy after after five days.
		Rabid	Start vaccine. Administer serum upon positive diagnosis and complete course.
	(b) Rabid, wild animal or not available for observation		Serum and vaccine
Class III.			
Licks of mucosa; major bites (multiple or on face, head, finger or neck).	Suspicious rabid domestic or wild animal, or animal not available for observation		Serum and vaccine. Stop treatment if animal remains healthy for five days.

Following treatment recommended:**a. Local wound:**

1. First aid: wash wound and flush with soap and water or use detergent or water alone. Apply 40–70% alcohol or Tr. of Iodine.
2. Apply anti-rabic serum to the depth of wound and infiltrate around the wound.
3. A.T.S. if necessary and antibiotics for infection other than rabies.

b. Specific treatment — Schedule B.

SCHEDULE FOR USE OF RABIES VACCINE (B)**Dosage of B.P.L. Inactivated Vaccine**

(Recommended by Central Research Institute, Kassauli and Pasteur Institute Coonoor)

Nature of exposure	Children over 30kg	Children below 30kg	Duration of treatment	Boosters
Class I.				
(a) Kassauli	2ml	2ml	7 days	Nil
(b) Coonoor	2ml	1ml	7 days	—
Class II.				
(a) Kassauli	5ml	2ml	14 days	3 weeks after 14th injection
(b) Coonoor	3ml	3ml	10 days	—
Class III.				
(a) Kassauli	5ml	2ml	14 days	2 boosters, 7 days after 14th injection and 2 weeks or later after 1st booster.
(b) Coonoor	5ml	3ml	10 days	—

NOTE:

If a patient has previously been given rabies vaccine or has allergies, Duck Embryo vaccine is available on request from Central Research Institute, Kassauli H.P.

5.2.7. Skin conditions.

Scabies.

Infection of the skin with a mite (*sarcoptes scabiei*). The female burrows into the skin to lay eggs. The main symptom is itching.

Spread is from adult to child or child to child by skin contact; whole families affected or in a village the majority of the inhabitants. In babies every skin area including the face may be affected but in older children and adults the face is spared. On examination three types of skin lesion can be seen:

1. The burrows made by the female about 5mm—8mm can best be seen where the skin is thin and pale, webs of fingers, some burrows end in a small pin-head vesicle showing the presence of the female mite.
2. Scratch marks which may be secondarily infected and appear scabbed like impetigo.
3. Urticarial lesions and papules secondary to sensitisation.

Treatment: Directed to the individual and the whole family: sometimes all the village.

The individual. If secondary infection of the skin is severe this may first require treatment with injection of long acting Penicillin or oral Sulphonamide for about a week. Child is bathed and 10 per cent emulsion of Benzyl Benzoate is applied for three successive nights as the child goes to bed. Use Sulphur ointment (5 per cent) for lesions on the face, and on the body if Benzyl Benzoate is not available. Treat all family members at the same time.

At the end of the treatment wash all clothes, if possible boil, and put out in the sun to dry. If necessary treat on a village basis otherwise infection will spread again.

Skin Sepsis.

Skin infections very common; organisms invade any small breaks caused by scratching, walking on rough ground or sharp grasses etc: also complicate infestations such as scabies. More common if hygiene is bad and bathing infrequent, or nutrition is poor.

Impetigo.

Sometimes skin infection spreads from child to child by touch. Essential lesion is a superficial blister. At first clear and later purulent, the blister bursts and a scab forms. The infection spreads by undermining the upper layers of the skin.

Treat small areas by cleaning and painting with triple dye or Gentian Violet. If extensive also give Sulphonamides or Penicillin, either long acting or daily injections for five days.

Furuncle (Boil).

Infection of one or more (carbuncle) hair follicles. Begins as a small irritable and painful spot. For a few days enlarges and centre dies becoming the 'core' surrounded by pus. Core separates in about 7 days and then healing is rapid. Scar remains. Regional lymph nodes often painful and swollen.

Treatment: Fomentations quicken the inflammatory response. Sulphonamides or Penicillin given early might stop progress. May occur again.

5.2.8. Eye Conditions.

Congested 'red' and watery eyes.

Occurs in individuals or in epidemics. Conjunctivitis may be bacterial or viral in origin. Always important because, if the affected children are poorly nourished — especially if short of Vitamin A — conjunctivitis may lead to keratitis, ulceration and opacities. In severe cases pus forms in anterior chamber of the eye. Blindness may result (5.2.5).

Signs: Eyes red and itchy, eyelids swollen. May stick together if secretions dry — very dangerous. Pain and photophobia show cornea affected. Treatment urgent.

Uncomplicated cases: Wash eyes frequently with boiled water. Drop in Penicillin or Sulphacetamide drops (10 per cent for babies and 30 per cent for older children). Someone in each village must be expert in washing the conjunctival sacs so that they are really clean and do not stick (6.2.3.1). This must be done and drops given at least three times each day. Look for signs of Vitamin A shortage.

On suspicion of keratitis give Atropine drops, rub Neomycin eye ointment along lids so that some goes into the sacs.

Give Vitamin A as in 5.2.5.

Trachoma.

Important cause of blindness, endemic in some areas. Infection due to virus of lymphogranuloma group is spread by contact, use of towel, handkerchief, sari, any piece of cloth or fingers from infected to non-infected child. Spread by fingers when using 'Kajal' is common. Affects children of all age groups and adults.

Begins as conjunctivitis with irritation like a foreign body but examination of eyelids, especially the upper, shows the follicles. As infection continues the pericorneal area is involved and slow fibrosis and distortion of the eyelids causes or allows keratitis and corneal opacities to develop. In the final stages the cornea is vascularised and blindness follows.

Suspect trachoma in all conjunctivitis. Always examine eyelids.

Prevention: Education to prevent contact spread; to common towels or face cloths. Discourage Kajal particularly when it may be put into the eyes of several children in turn by the same person using the same finger.

Treatment: See specialist if possible. Sulphacetamide drops (10 per cent young children, 30 per cent older) or Tetracycline eye ointment twice daily for two months. Follicles crushed or touched with Silver Nitrate. If keratitis or scarring send to ophthalmologist.

5.2.9. Infections of the Central Nervous System.

Acute Meningitis.

a. Pyogenic and tuberculous meningitis are common. Former comes on more quickly than the latter but in both there is fever, headache, vomiting, irritability followed by dulling of consciousness. Children over three years of age complain of headache, before that age they simply become fretful and irritable.

- b. During the first month of life meningitis is nearly always due to *B. Coli*. Diagnosis difficult: the child goes off his feeds, becomes inert, the head circumference increases and the fontanelle bulges. No neck stiffness. Diagnosis by LP but infection is usually advanced.
- c. After the first month, meningococci, pneumococci, haemophilus influenzae are the commonest infectors.
- d. Pyogenic meningitis has rapid onset: baby cries, vomits, may have a fit. Neck is stiff. May have a skin or middle ear infection. Send to hospital if possible. If not do LP, cloudy CSF many leucocytes and high protein. Organisms can often be seen and identified on a slide stained with methylene blue or Gram's stain. Treatment of pyogenic meningitis is usually satisfactory if the diagnosis is made in time and the organism can be identified. If the organism is not identified then Penicillin 1 mega, Sulphadiazine 100mg/kg and Chloramphenicol 30mg/kg is given eight hourly. When necessary Phenobarbitone 6–8 mg/kg/day is also given. A clinical response should begin in twenty-four hours. Do LP again after a week. If the CSF has cleared stop Chloramphenicol continue Penicillin and Sulphadiazine for a further week. Subdural empyema occasional complication.
- e. Tuberculous meningitis, most common between six months and five years (5.2.6.4). Onset usually slow but may be acute with a fit. Change of behaviour, slight fever, loss of appetite, vomiting and irritability. Symptoms vary greatly day to day, slowly becoming worse. Illness follows measles or whooping cough. Gradually the child becomes more ill and loses weight. After two or three weeks consciousness is clouded or focal CNS signs appear – hemiplegia, cranial nerve palsies, etc. The child may or may not have a positive tuberculin skin test. On LP the CSF may be clear or cloudy, cells increased, mostly monocytes or lymphocytes. Protein is raised usually above 100mg per cent but less in pyogenic unless spinal block.

Outcome of TBM depends upon duration before treatment begins. Get to hospital. Basis is the combination of INH and Streptomycin with PAS or Thiacetazone. Give steroids to prevent the development or extension of adhesions at the base of the brain.

If you treat give Isoniazid 20mg/kg/day in two doses with Thiacetazone 3mg/kg/day. Give Streptomycin 40mg/kg/day (maximum 1g) daily for three months. Then reconsider. Rifampicin if obtainable, as syrup, child 20mg/kg/day, 600mg a day maximum.

Results depend upon amount of brain damage: approximately one quarter of children recover completely; one third have significant permanent neurological damage manifest as hydrocephalus, hemiplegia, blindness, mental retardation. The rest die.

For other details of tuberculosis (5.2.6.4).

Virus Meningitis (including Poliomyelitis)

Many viruses including poliomyelitis cause meningitis. The child has headache, neck and back stiffness, is febrile, may vomit. In anterior poliomyelitis before paralysis muscle tenderness is marked. Fever may be high but child never so toxic as with bacterial infection. Most striking he is not drowsy nor is consciousness impaired. Despite stiffness child is alert and anxious whether anyone will touch his tender muscles. Headache often severe so that the patient wishes only to be in a dark place undisturbed and away from noise. If LP is done, CSF

nearly always clear and below 200 cells per cm. Protein may be raised a little but not so much as in bacterial infection: not often over 100mg. Acute phase over in a few days and recovery is rapid. Paralysis may result in any group of muscles.

5.2.10. Kidney Conditions.

Acute Urinary Infection.

Common, especially in girls. May present as fever only or with vomiting and shivering attacks. Frequency of micturition and pain.

May not be any abnormal physical signs. At other times the child may be tender over one or both kidneys front or back. Examine urine with microscope, many pus cells seen.

Infecting organism nearly always B.Coli and gram negative. Most sensitive to Sulphonamides, give with large quantities of water to drink. If acutely ill Streptomycin may be given for 4–7 days with the Sulphonamide. Acute symptoms usually go rapidly but treat for three weeks after the urine is clear from pus cells.

Relapse is common raising suspicion of a congenital abnormality of the urinary tract; send children with recurrent attacks to hospital.

Acute Nephritis (Glomerular).

Follows streptococcal infections; is a sensitivity response. More frequent between eight and fifteen, uncommon under five years.

Onset: Three weeks after a streptococcal infection.

Clinical pictures:

1. Child's face becomes 'puffy', so do his legs. He passes less urine, which is 'smoky' or frankly red with blood.
2. Urine is seen to be 'red'; no other complaints.
3. Acute rise of BP; causes severe headache, vomiting, temporary loss of vision, even acute left-sided heart failure with pulmonary oedema.
4. Complete anuria.

Diagnosis: Clinical picture, high BP, urine contains blood, protein and renal casts (6.2.4).

Despite alarming onset most recover completely. Give oral Penicillin to eliminate any remaining streptococcal infection. High BP only treated if causing symptoms, then use Reserpine 1 tab two or three times a day. Restrict fluids if oedema present. After a few days urine output increases and blood disappears. BP falls and recovery is usually complete in 2–3 weeks. Very occasionally progresses to sub-acute glomerular nephritis and ends in renal failure. Also occasionally a type occurs with painless haematuria the only symptom.

Nephrosis.

Different illness from acute nephritis. Rapid onset of generalised oedema with ascites, sometimes pleural effusions and massive albuminuria. Blood pressure normal and there is no blood in the urine, liver large.

Onset: Usually below five years but occurs later.

Send to hospital. If you must treat give steroids 2mg/kg/day until the child has a diuresis and the oedema disappears; reduce dose to 0.5mg/kg/day to complete

eight weeks. Give Penicillin by mouth or if risks of infection are great Benzyl penicillin 600,000 or 1.2 million units weekly. Either cellulitis of oedematous tissues or pneumococcal peritonitis. Many cases relapse.

Differential diagnosis (Table 6): Kwashiorkor; acute nephritis; Indian childhood cirrhosis; congestive heart failure.

5.2.11. Worm Infestations.

Very common, most frequent:

Round worms (*Ascaris lumbricoides*),
Hookworms (*Ankylostoma Duodenale*),
Threadworms (*Oxyuris Vermicularis*)

Round Worms.

Infected persons pass eggs in faeces infecting soil. Eggs develop into larvae. Larvae ingested with unwashed vegetables, in well water, sometimes in young children playing in or eating soil or mud. Eating food prepared by persons with 'dirty' hands.

Adult worms develop in intestinal tract, may be in faeces or vomited.

Heavy infestation may cause diarrhoea, pain or obstruction. Adverse effect on nutrition doubtful. Infection may be widespread then all the children in a village should be treated at the same time — organised by village workers.

Treatment: Piperazine. Single dose 250mg—500mg for each year of life up to 3g. Dead worms passed the next day. Repeat in a week or two if necessary. A cheaper remedy is 6 papaiya seeds for two days.

Hygiene: Health workers must teach:

1. Disposal of sewage.
2. Washing of vegetables and roots in clean water.
3. Hand washing and nail cutting.
4. Clean or boiled water.

Hookworm (*Ankylostoma Duodenale*).

Confined to certain areas, particularly coastal zones. Ground contaminated by ova from faeces of infected persons. Larvae hatch and penetrate the skin of feet of children or adults walking barefooted or sitting on the ground. Reach lungs via blood stream.

Adult worms penetrate mucous membrane of upper intestine and ingest blood — eggs excreted in stools. (Fig.24).

Symptoms: Anaemia and abdominal pain.

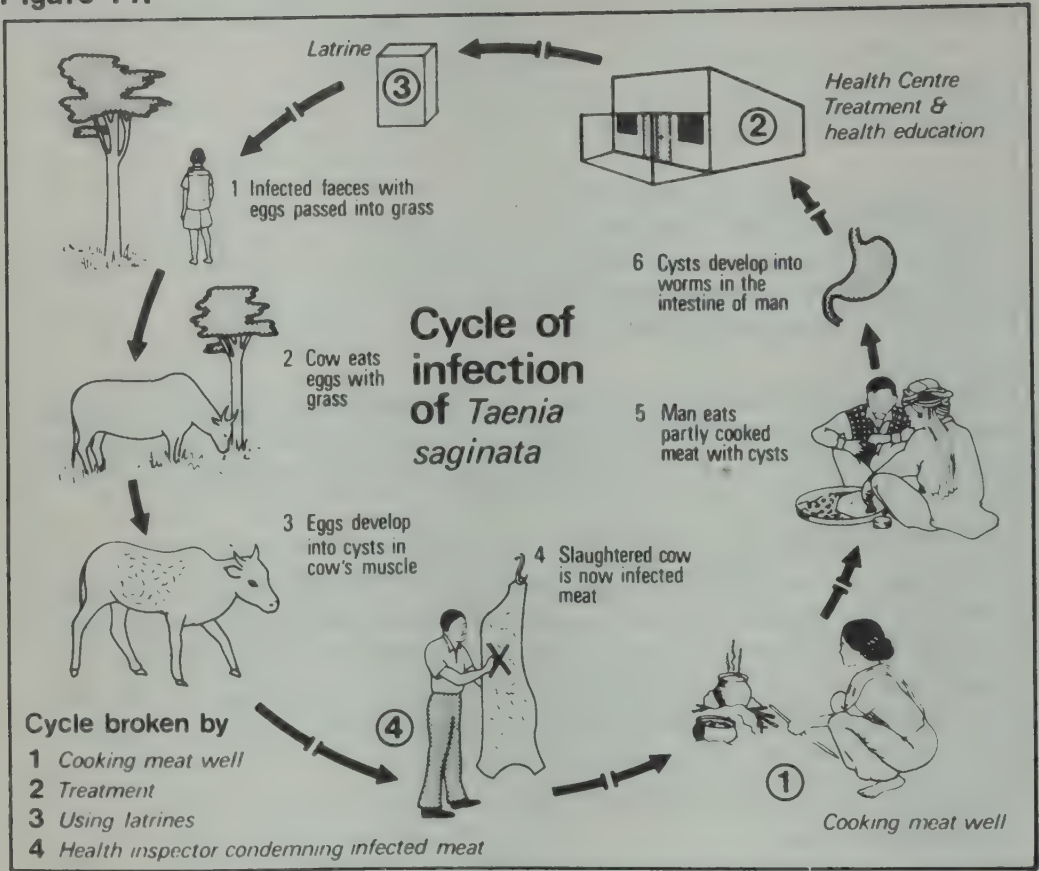
Prevent by proper disposal of excreta. Wearing of sandals where risk is high.

In villages with high incidence of anaemia, hookworm should be suspected.

Treatment: Bephenium Hydroxynaphthoate Granules (Alcopar) given as a single dose in a sweet drink. Child 1—2 years 2.5g; over two years and adults 5g. Where hookworm is present there is mass infection and communal treatment is necessary.

Only effective if curative and preventive treatment go together.

Figure 11.



1. Mass deworming every three months for two years then six monthly for two years.

2. At same time deep disposal of faeces.

3. Community must understand cycle of infestation and effects of infestation and co-operate in programme.

Education and co-operation essential.

Threadworms (*Oxyuris Vermicularis*).

Not so important as others. Worms live in large intestine and rectum. Females emerge at night to lay eggs causing anal and vulval irritation and scratching. Infection from skin of other children – e.g. clasp hands or by self infection when eggs are caught up by scratching and then swallowed by sucking fingers.

Treatment: Give Piperazine; children to 7kg 250mg; 7–14kg 500mg; 14–27kg 1 g; over 27kg 2g. One dose given daily for seven days before first meal.

Tapeworms (*Taenia*).

Long flat worms, head is fixed to mucous membrane of the upper intestine, body is segmented and segments distally to contain eggs. Mature segments break off, and are passed in faeces. The ground or grass becomes contaminated and segments may be eaten by an intermediate host (pig or cow). In the stomach of

the animal the eggs hatch and young worms pass into the blood stream and thence into muscles where they form cysts.

Taenia saginata (beef) is more often seen than *Taenia solium* (pork). School children are more affected than younger children.

Diagnosis made when segments are seen in stools but may be abdominal pain, failure to gain weight and chronic diarrhoea. Segments in stools, about size of pumpkin seeds, can be recognised by naked eye. Distinction between *Taenia saginata* and *Taenia solium* is made by examination under the microscope. Occasionally *Taenia solium* becomes generalised throughout the muscles of the body as cysticercosis.

The worm is eaten in infected meat which has not been sufficiently cooked. If meat is examined it can be recognised as 'measly'. Once diagnosed, treatment should be given as the worm can live in the intestine for years.

Prevention: Treat all infected people. Use clean latrines. Inspect meat for cysts. All meat must be well cooked.

Several treatments are used. Most effective is Chlor-salicylamide (Yomesan); children over 2 years 2g (4 tablets) and under 2 years 1g (2 tablets) given in two doses at intervals of one hour followed in two hours more by a purge of magnesium sulphate. The tablets are chewed and swallowed with sips of water. Atebrin (Mepacrine) is also effective but can cause gastric upset; 7–10mg/kg body weight in two divided doses at 30 minute interval. Sodium bicarbonate helps to reduce gastric disturbance. Two hours after the second dose a saline purge is given. Felixmas is older but less effective; oleoresin of Male Fern (Felixmas) 2 drops/kg body weight (maximum 60 drops) in emulsion 5% glucose and gum acacia at 30 minute intervals for three doses then a saline purge two hours later.

Tapeworm (*Hymenolepis nana*).

No intermediate host. May not be any symptoms, some children abdominal pain. Treatment Mepacrine or Camoquin.

Filariasis.

Seen in endemic areas in Kerala and Bihar; rarely in other areas. *Wuchereria* commonest worm, infection through mosquito (*Culex Fatigans*). Infection may be asymptomatic but there is often fever with painful enlargement of lymph nodes and localised soft swellings or erythematous areas or linear markings in legs, arms and testes. Very rarely children present with elephantiasis.

Diagnosis from other causes of lymphadenitis or cellulitis. *Micro-filariae* may be found in blood at night.

Treatment: Diethyl Carbamazine citrate 6mg/kg for ten days repeated if necessary. Aspirin for pain or fever. For patients not responding to Diethyl Carbamazine and developing signs of obstruction steroids 2mg/kg for five days and then 1mg/kg for three weeks.

Prevention: Depends on mosquito control, spraying of breeding places, protection of houses with screens on windows and doors. Use of mosquito nets at night. Spraying house before dusk.

Guinea Worm (Dracontiasis)

Endemic. Infection through skin or mucous membranes contact with water containing larvae liberated by cyclops where they have developed after shedding from female worm into the water. Presence of worm evident by painful swellings in soft tissues: usually in lower parts of body. During the early stages must be distinguished from an inflammatory swelling or filariasis; later swellings sometimes soften, burst and the thin thread-like female worm slowly emerges. If this happens it should be extracted by winding it slowly round a matchstick an inch or two each day (2.5–5cms). Take care not to break the worm as cellulitis may follow.

Systemic treatment: Diethyl Carbamazine 6mg/kg body weight for ten days or Metronidazole. Give Penicillin if there is local infection.

Community education is important. Prevent by chlorination of all drinking wells. Infected people should not enter the water of ponds, tanks or wells.

5.2.12. Common Symptoms and Complaints.

Mothers bring children because they complain the child is ill — they have complaints and not diseases — so you must learn the significance of symptoms and signs and how to make a diagnosis from history, examination and appreciation of the circumstances of the situation.

5.2.12.1. The Crying Child.

Mothers often complain their children cry and a child's cry can have many meanings. Constant crying or misery is nearly always a sign of physical illness and needs serious attention — the most likely causes differ with age but by two and a half or three years the child is able to indicate the location of pain.

When asked to see a crying child think of:

1. Hunger.
 2. Nasal obstruction.
 3. Body discomfort due to any reason.
 4. Abdominal pain.
 5. Otitis media.
 6. Meningitis.
 7. Osteitis.
 8. Scurvy.
 9. Acute urinary infection.
1. Make enquiry about feeding, amount of milk or food, dilution of milk and water, amount of supplement of breast-feeding — over-diluted weak feeds are common. Mother may have retracted nipples. Correct the amount of food and the way it is made up; add solids or semi-solids as necessary. Make sure no other condition exists (6.2.2.5—7.).
 2. In very young infants the nose easily becomes blocked because the mucosa swells. The infant cannot then feed because he cannot breathe through his nose. These babies cry incessantly from hunger. Other members of the family may have respiratory infections. Clean the nose with a moist cotton swab so that the child can breathe and feed. If fever treat with Penicillin or Sulphadiazine.
 3. Wet napkins, uncomfortable bedclothes or shoes, or even cramped positions. It is the younger mothers who bring children who are crying for these reasons whereas older mothers and grandmothers are aware of these causes. Other causes must be carefully considered.
 4. Abdominal pain may be caused by air swallowed during feeding; it is more common if the infant is fed from a bottle than a spoon or if breast fed. The swallowing of air is reduced by holding the bottle so that the teat is always full of milk, making sure that the hole in the teat is the proper size, and 'winding' the baby afterwards.
Abdominal pain occurs in enteritis and is accompanied by diarrhoea and sometimes vomiting; intussusception has bouts of abdominal pain often associated with the passage of mucus and blood.
 5. Otitis media: Infants often get inflammation in the middle ear associated with upper respiratory tract infection. The infant cries, particularly at night, refuses feeds and the cause of the condition cannot be determined until the

ears are examined with an auriscope. The drum is found to be red or even bulging. If the drum ruptures the pain diminishes (5.2.6.3).

6. Occasionally screaming and restless, or crying and stiffening when moved are signs of acute meningitis (5.2.9).
7. Acute Osteitis causes pain and crying before any local signs in the affected limb; in newborn and very young infants swelling may appear first without pain as the bone cortex is so thin rupture occurs quickly (5.2.12.15).
8. Scurvy like osteitis is characterised by pain and loss of function. Pain and crying greatest as the child is moved or changed. Mouth or skin bruising may be seen (5.2.5).
9. Urinary tract infection may have no local symptoms only fever and crying. Always examine the urine as part of the examination (6.2.4.1).

5.2.12.2. Cough.

Cough is common and a frequent cause for consultation because it worries mothers. Cough is an attempt to clear the respiratory tract. It is caused by secretions, by anything, e.g. acute inflammation acting as an irritant, or by pressure from outside the bronchial tree, e.g. enlarged lymph nodes.

You will diagnose the cause of cough by listening to the history, hearing the cough and by clinical examination.

The cause of the cough may operate at any level in the respiratory tract.

Nasal secretions in acute or chronic infections can drain backwards as well as forwards: this post nasal drip is evident at night. Muco-purulent material can often be seen at the back of the pharynx.

Enlarged tonsils and adenoids associated with excess secretions can also cause cough in children. In laryngitis and tracheitis the voice is hoarse and the cough loud and hard. In bronchitis in the acute stage, dry cough and wheeze (spasm) are often associated, as spasm diminishes secretions increase and cough becomes loose; with stethoscope wet sounds heard over the lung fields.

When the swollen bronchi are affected as in bronchiolitis or in bronchopneumonia, cough is short, frequent and repetitive. Breathing rate raised; patches of crepitations can be heard one or both bases posteriorly (5.2.6.3).

In an attack of asthma cough begins as the spasm (wheeze) disappears. Mucus secreted during the attack must be coughed up.

Cough may be paroxysmal, a quick succession of short coughs rises to a crescendo. Sometimes followed by a noisy crowing inspiration as the lungs are filled. Typically heard in whooping cough this type of cough can also occur in tracheo-bronchitis, with an inhaled foreign body or in pressure on the trachea from enlarged lymph nodes. Although tuberculosis is most common, rarely leukaemia and malignant disease may be the cause (5.2.6.4).

A dry hacking cough troublesome at night should make you consider pertussis and tropical eosinophilia.(5.2.6.4).

5.2.12.3. Stridor.

Stridor is the noise produced by air flowing past a narrowed portion of an airway. Laryngeal stridor can be caused by acute swelling of the mucous membrane or by spasm of the vocal cords. Occasionally acute obstruction can be caused by acute inflammation and swelling of the epiglottis. Acute tracheitis can also produce a stridor which might be associated with the loud barking cough of croup.

Acute infection of the trachea associated with spasm tends to occur in the second or third years; commonest causes haemophilus influenzae, pneumococcus and respiratory viruses. Laryngeal or tracheal diphtheria is most common under five years of age and must always be suspected if a child is toxic, ill and pale and has respiratory obstruction.

Stridor is also a sign of inhaled foreign body, to be suspected when it has followed a bout of coughing during a meal or whilst the child is playing.

Finally, as with cough, when there is a consistent inspiratory stridor always think of the possibility of enlarged tracheal or carinal lymph nodes.

Very occasionally an otherwise healthy baby will have a gentle inspiratory stridor from birth best marked when active or crying, least apparent or absent in sleep. This is due to the approximation of mucus folds in the upper larynx and disappears during or towards the end of the first year.

5.2.12.4. Headache.

Not a common symptom in children and not a cause of complaint until over the age of 3–4 years. Younger children with headache simply cry or are miserable, quiet or irritable — particularly when moved or nursed.

1. Headache can be a symptom in any acute infective illness; especially in severe acute upper respiratory infections with sinusitis or in onset of specific fevers.
2. Severe headache due to increased intracranial pressure occurs in:
 - a. Acute meningitis whether bacterial or viral.
 - b. Space occupying lesions such as tuberculosis, neoplasm or brain abscess.
 - c. Hypertensive encephalopathy — as in acute nephritis.

Sinusitis and errors of vision are causes often overlooked. The former is worst in the mornings and the latter in afternoons or evenings.

Complaint of headache as a single symptom is nearly always in older children.

With severe headache always examine sinuses, look at throat, take BP, look at optic fundus for venous congestion or papilloedema, examine CNS.

If no signs of organic disease in older children look for any evidence of emotional stress at home or school. Think also of migraine.

5.2.12.5. Convulsions.

Attacks of uncontrolled movements associated with interruption of consciousness are frightening to parents and can be difficult to treat. Attacks may be sudden, apparently without cause. They can vary from a brief, momentary lapse of consciousness — the child appears to 'stare' for a few

moments then resumes former activity — to stiffening of all four limbs with uprolled eyes succeeded by a phase of rapid involuntary twitching movements. Sleep often follows. Convulsions most common in the first five years.

Attacks of several types:

1. Associated with high temperatures — often from respiratory infections especially with acute otitis media but in any febrile illness (see below — Febrile convulsions).
2. Attacks without apparent cause, occurring irregularly or at regular intervals, most common times just on awakening or shortly after going to sleep; only a few go on to established epilepsy.
3. Attacks which indicate an acute infection of the central nervous system — acute bacterial meningitis or tuberculous meningitis.
4. Attacks which occur in children with previous brain damage from birth injury, from trauma, from previous infection.

Convulsions can also occur from biochemical changes such as in breath-holding attacks or states with low blood calcium as in rickets.

Treatment involves two problems:

1. Treatment of the convulsion. Admit PHC if possible.
2. To ascertain if there is a cause for the convulsion and to treat it as necessary.
1. Treatment of the immediate convulsion depends upon its length — many are over very quickly — but a child must not be allowed to pass from one attack into another as in Status Epilepticus because brain damage can result. A quick-acting anticonvulsant is required. For the immediate control of repeated fits which have not stopped spontaneously, the following may be used — (3) or (4) first choices:
 - (1) Sodium Phenobarbitone (Intravenous)
3 months 15mg; 3–12 months 30mg;
2 years 30–60mg.
 - (2) Paraldehyde (Intramuscular).
Under 3 months 0.5ml; 3–6 months 1ml;
6–12 months 1.5ml; 1–2 years 2 ml;
2–5 years 3–4ml.
 - (3) Phenytoin Sodium (Intramuscular or Intravenous) (Epanutin).
Up to 1 year 5mg per kg body weight;
1 year 50mg; 7 years 100mg.
 - (4) Diazepam (Intramuscular or slow Intravenous injection).
Up to 1 year 0.1mg per kg body weight;
1 year 1.25mg; 7 years 2–5mg.

These can be followed by a slower-acting anticonvulsant so that the chances of early recurrence are reduced.

If a child has regular fits, continued therapy is necessary; the most usual anticonvulsant for regular use is Phenobarbitone. Children to five years 15mg tds; children 6–12 years 30mg bd. increasing to 60mg tds. Phenobarbitone causes excitability in some children, especially under five years of age or those with neurological damage or mental subnormality.

Phenytoin also widely used, often with Phenobarbitone. Give children to five years 50mg once, increasing as necessary to three times daily: 6–12 years 50mg bd. increasing to 100mg tds. as necessary. Treatment to suit each individual.

2. A child needs a full physical examination immediately the fit is controlled. The temperature is recorded, particular attention must be paid to the ears, the chest, the throat, the possibility of acute meningitis or other CNS damage. A lumbar puncture may be required. The urine must be examined.

In most children no cause will be found. Those who are febrile will most likely have an infective illness which can be recognised.

Breath-holding attacks not dangerous. Occur in children from 1–3 years following a slight knock or fall or during a temper tantrum.

Febrile convulsions.

A sudden rise in body temperature in a young child when CNS is immature may cause a fit. These convulsions last a short time, are not often repeated and do not have associated neurological abnormalities. Sometimes more than one child in a family is affected. The child is nearly always under five years of age and the fit occurs at the height of the temperature. In cases of doubt, a lumbar puncture should be done to see whether CSF is clear or there is any increase of cells or protein.

Management of febrile convulsions. Admit to the PHC. Bring body temperature down to normal with tepid sponging, Paracetamol or Aspirin. Keep throat clear of secretions. Treat any infection causing fever. If fits repeated control with Inj. Paraldehyde 1ml/year of age to 6 years deeply into a muscle or Phenobarbitone 8mg/kg IM. If no response either of these injections can be repeated after half an hour.

Later on Phenobarbitone can be given 5mg/kg/day in divided doses for two days after the subsidence of fever. Antibiotics should be continued for a period of five to seven days or until in otitis media the eardrums are normal. Parents will be told to use tepid sponge when the child has fever from any cause.

5.2.12.6. Stupor and Coma.

Impairment of consciousness can be of several degrees: stupor from which a child may be roused briefly; in light coma children respond to painful stimuli, in deep coma they do not.

Coma, uncommon and always serious, occurs in

1. Intracranial infections
 - a. Encephalitis from any cause;
 - b. Pyogenic meningitis;
 - c. Tuberculous meningitis.
2. Post convulsion — Epilepsy.
3. Intracranial trauma.
4. Drug intoxication or poisoning.
5. Hepatic coma.
6. Rarely — Diabetes mellitus; Uraemia; Hypertensive encephalopathy.

Examination of the eyes shows degree of involvement. Bilateral fixed pupils are serious with the likelihood of brain stem damage. Pupils are unreactive in reversible coma resulting from poisoning by sedatives and Atropine-like drugs. Pinpoint pupils in coma are seen during Opiate or Barbiturate poisoning.

Diagnosis important. Full clinical examination, urine or LP; history of intake of Opium, Dhatura, Atropine substitutes and Barbiturates will suggest the cause.

Good nursing care is essential: keep constant watch on respiration, pulse and BP.

Air passages must be maintained by clearing the pharynx and throat. Head turned to one side and kept low by pillows underneath the trunk. Feeding by intragastric catheter which is changed every second day.

Give enema if child is constipated. Prevent bed sores.

IV Mannitol 1–2g/kg may be given to reduce intracranial oedema. This can be repeated twice a day for three or four days.

Specific causes must be treated. Watch clinical symptoms and signs closely. If coma continues more than ten days and limbs are stiff, begin massage and movements.

5.2.12.7. Jaundice.

Jaundice, especially mild, is best seen in the eyes in natural light.

Excess bilirubin circulates in the blood when liver cell function is damaged; when there is excess breakdown of red blood cells or obstruction to the free flow of bile from the liver to the duodenum. Sometimes more than one of the processes act together. Unconjugated bilirubin, fat soluble, is not excreted in urine; conjugated bilirubin reabsorbed into the blood stream after obstruction is water-soluble and excreted in urine. In obstructive jaundice the stools are pale and urine dark.

Common causes of jaundice:

First month. Many infants particularly if immature have a transient jaundice from about the third to the 6–9th days of life. It is associated with the fall in circulating RBC and Hb which takes place at the same time; the baby does not show any signs of illness and feeds well. Jaundice is never present at birth.

The liver of the full term baby can deal with the breakdown of haemoglobin but the liver of the immature infant is unable to conjugate as much bilirubin. The absorption of large amounts of haemoglobin, e.g. from a cephalhaematoma or extensive bruising can cause jaundice; hypothermia and hypoglycaemia can affect liver function. Jaundice due to haemolysis caused by maternal antibodies is uncommon. It appears on the first or second day of life and rapidly deepens. The child must if possible be sent to hospital for treatment.

Glucose-6-Phosphate Dehydrogenase (G6PD) deficiency can cause jaundice in newborn male infants. Transmitted as a sex-linked recessive it is seen in Parsi, Bhatia, Lohana and Khoja communities. Jaundice may be caused by infections, food especially beans, or drugs, particularly sulphonamide, Aspirin or Chloroquine. If it occurs in the first few days of life then exchange transfusion may be required.

Jaundice in the second week, especially if the baby becomes inert and unwilling to feed, suggests infection. B.Coli septicaemia particularly liable to cause jaundice but staphylococcal infection from the umbilicus (portal pyaemia) may do so.

Jaundice due to congenital obliteration of the bile ducts is rare; comes on slowly, bilirubin is conjugated so the urine contains bile and stains clothing or napkins: stools pale.

Occasionally a baby will develop jaundice with a large liver and spleen and a rash; suspect congenital syphilis.

Later the commonest causes of jaundice are Infective Hepatitis and Indian Childhood Cirrhosis.

Infective hepatitis occurs in epidemics in damp weather. Incubation period about five weeks, onset loss of appetite, vomiting, pain in right side over an enlarged liver followed by jaundice and dark urine with pale stools. Diarrhoea is uncommon. No specific treatment but plenty of fluids and sugar. Vitamin B complex and Vitamin C should also be given. Recovery may be slow but is nearly always complete.

Indian Childhood Cirrhosis.

A peculiar form of liver disease occurring in children. The cause is unknown. Since it occurs in families a genetic factor may be associated with other causes, possibly virus hepatitis.

Early symptoms are alteration or loss of appetite sometimes with fever. If examined, the liver is firm and may be enlarged. Later jaundice develops with dark urine and a distended abdomen; by that time the liver is larger with a firm edge. The spleen is also enlarged and it and the veins from the umbilicus indicate portal venous obstruction. As jaundice deepens and persists, ascites and oedema of the feet may develop. If, as often happens, the disease is progressive, the child's level of consciousness becomes affected, irritability passes into unconsciousness as hepatic coma begins. Mortality is high.

Diagnosis: Family history of jaundice and slow onset in jaundice and enlarged liver. Other causes of liver enlargement differentiated. No specific drug treatment: Liver extract, Vitamin B₁₂ and B complex. Steroids and gamma globulin have been given but there is little evidence they affect the course of the disease. With a poor prognosis consideration should be given to the economy of the family before expensive medicine is purchased.

5.2.12.8. Bruises, Purpura and Petechiae

All due to bleeding into skin; appear as a result of local injury, changes in the blood (reduced platelets), alterations in capillary permeability or increase in venous pressure.

Distinction between them really one of size, bruises and purpura being any size larger than a petechial spot — all flat with the skin surface and all change colour as the haemoglobin in the tissues is broken down and absorbed.

Causes:

1. With large bruises think of injury, accidental or otherwise — history, site and distribution important.

2. With grouped petechial haemorrhages think of insect bites, mosquitoes or fleas.
3. Scattered bruises any size and sometimes bleeding occur in Idiopathic Thrombocytopenic purpura (ITP), sudden onset of bruises in a child previously well without history of bleeding tendency. Spleen may be felt but is not large.
Examination of the blood shows diminution or absence of platelets but no abnormal leucocytes or lymphocytes. If child is pale or has lymph node enlargement, suspect leukaemia.
ITP requires long treatment with steroids, 8–10 weeks: 2mg per kilo/day reduced to 0.5mg/kilo after two weeks.
4. Non-thrombocytopenic purpura occurs in which the spots are petechiae rather than bruises. It may follow upper respiratory infection or drugs — see also Henoch-Schonlein purpura below.
5. Bruises and petechiae with urticarial weals are features of Anaphylactoid (Henoch-Schonlein) purpura. The lesions occur in crops about weekly intervals particularly over pressure areas, about elbows, buttocks and ankles. Haematuria and nephritis can occur and also recurrent attacks of abdominal pain.
The platelets and other blood constituents are normal. No specific treatment although steroids have been used to ease abdominal pain.
6. Purpura occurs in young children, in haemophilia due to deficiency of clotting factor (Factor VIII). Bleeding prolonged on trauma but occurs spontaneously into joints especially knees and ankles. Boys affected; the condition is sex-linked transmitted by a female carrier, not clinically affected. Local cold packs might help but fresh blood transfusions needed if bleeding is severe.
7. Bruises and purpura occur in septicaemic illness; the child is toxic and shocked. Particularly seen in meningococcal or pneumococcal septicaemia but possible in any severe infection.
8. Deficiency conditions. Purpura, except in the mouth not common in scurvy but can occur with bleeding gums and tenderness at the ends of long bones. Response to Ascorbic Acid 1–1.5g daily for a week is rapid. Purpura or petechiae in Kwashiorkor due to increased capillary permeability are late signs.

5.2.12.9. Abdominal distension and Emergencies.

1. Children between 2–4 years in good health often appear 'pot-bellied'. This is a feature of growth. If weight and height are normal, the child active and no abnormal physical signs found, the appearance is normal.
2. Malnourished children with poor muscle tone and children with rickets may have abdominal distension often with umbilical hernia. They may have infestation with round worm, threadworm or with tapeworms.
3. Conditions causing chronic diarrhoea often associated with gaseous abdominal distension because they also cause wasting. Thus secondary failure of absorption after repeated intestinal infections, chronic infection with *Giardia* Lamblia, gluten sensitivity in wheat eating areas.

4. In infants abdominal distension can be caused by air swallowing (5.2.12.1). if the babies are constipated and failing to thrive, suspect Hirschsprung's disease (aganglionic segment in rectum).
5. Enlargement of the liver or spleen for any cause.
6. Abdominal ascites associated with cirrhosis of the liver, tuberculosis, nephrosis or Kwashiorkor.
7. Abdominal masses may be sufficiently large to cause general enlargement in tuberculosis, in kidney tumours (Wilms), mesenteric cysts, massive hydro-nephrosis. In girls lower abdominal masses may be due also to ovarian tumours or teratomas.

To assess abdominal distension first consider the general state of the child, then history of any symptom, then the findings on clinical examination. Special investigations may be necessary.

Common Abdominal Emergencies.

When you face the possibility that a child has an 'acute abdominal emergency' i.e. a condition likely to require prompt surgical treatment, the important decision is to know whether to send him to hospital or to keep him under observation in the PHC or at home. You are much more concerned to decide whether anything requiring surgical care is developing than to make a precise diagnosis (Fig.10).

You can only do this if the conditions allow a proper examination: you may need to give the child a sedative such as Paraldehyde and to wait until it takes effect before you can examine the abdomen.

The presenting symptom is usually pain, either intermittent (colic) or continuous; pain may be associated with vomiting or with diarrhoea, the abdomen may be distended.

You are concerned with the alimentary tract, the peritoneum and the organs in the abdomen but outside the peritoneal cavity.

In the alimentary tract you may be dealing with bowel infection (increased peristalsis, pain and diarrhoea, sometimes vomiting) with obstruction (pain, vomiting, distension) with peritoneal inflammation (pain, tenderness, rigidity).

Pain may be associated with structures outside the peritoneum as in acute pyelo-nephritis. First assess the child's general condition, has he fever, his pulse and respiration, is he dehydrated, is he shocked, is he restless.

Then take an accurate history and make a careful clinical examination (after sedation if necessary); examine the urine.

Abdominal pain due to colic is intermittent, doubling the child up and each pain making him cry. A spasm may be followed by vomiting or the passage of wind or bowel contents. It may be associated with partial obstruction due to ascariasis or intussusception; in the latter case the children may pass blood mixed with mucus and between pains it might be possible to feel a sausage-shaped mass across the upper part of the abdomen or in the left flank (Fig.10).

If obstruction is complete nothing passes per rectum. Abdominal distension is progressive and vomiting more copious, at first bilious but later green then faecal. Common cause in young children is ascariasis. For vomiting and distension in the newborn see 5.2.13.

5.2.12.9

5.2.12.10

5.2.12.11

Acute appendicitis not common but occurs in schoolchildren. Pain is intermittent, first in the centre of the abdomen, vomiting is usual. Child is febrile. After a few hours pain moves to right iliac fossa. On examination signs of local inflammation are present, i.e. muscle guarding and local tenderness. Some cases resolve, others go on to local abscess formation. Sometimes infection spreads giving rise to general peritonitis with continuous pain, vomiting and a silent distended abdomen. Condition is progressive and dangerous.

Renal colic due to stone occurs in some areas. Pain is acute, intermittent, begins in back and radiates round and into the loin; may be frequency of micturition or blood in urine.

Always be careful about pain and vomiting; pain and constipation; constipation, pain and distension. Always examine hernial sites in both girls and boys (5.2.6.2). Send to hospital when in doubt. (Fig.10).

5.2.12.10. Cyanosis.

The skin or mucous membranes can become blue from local or peripheral factors causing slowness of the circulation or central pulmonary or cardiac failure to oxygenate the blood.

Peripheral cyanosis is usually caused by slowing or obstruction to the skin circulation. The commonest cause is cold or congestion and it is distinguished from central cyanosis because warm mucous surfaces are pink. Peripheral cyanosis also occurs in shock or dehydration.

Central cyanosis, cardiac or respiratory.

1. Cardiac.

Congenital heart disease with a right-left shunt.

Congestive cardiac failure with raised venous pressure.

2. Respiratory.

Broncho-pneumonia; acute bronchiolitis; partial respiratory obstruction, e.g. in diphtheria.

5.2.12.11. Swelling of Face or Limbs (Table 6).

Not uncommon in children. On the face is first apparent in the eyelids and cheeks.

1. Associated with water retention occurs in acute nephritis, nephrosis, Kwashiorkor, congestive heart failure and the late stages of Indian childhood cirrhosis.
2. Local infection of eyelids and conjunctivitis.
3. A common cause in young children is congestion from repeated bouts of paroxysmal coughing in whooping cough, acute laryngotracheitis, acute bronchitis and sometimes from foreign body in the respiratory tract.

Oedema of the legs in:

1. Kwashiorkor.
2. Acute nephritis.
3. Nephrosis.
4. Congestive heart failure.

5.2.12.11

5.2.12.12

5.2.12.13

5. Cirrhosis of liver (later stages).
6. Allergy — Henoch Schonlein purpura.
7. Severe anaemia.

Characteristics of the types are shown on Table 6.

5.2.12.12. Loss of weight.

Mothers, especially those with children in their second or third years, complain that their children fail to gain or are losing weight. This may be true but at other times it is because the body form is changing.

The only way to be sure is to weigh children regularly and to plot the weights on charts (6.2.12.2 and 7.5.3).

Many children do fail to gain weight satisfactorily during this time; this is often due to improper feeding, the late introduction of semi-solids and solids and recurrent infections.

Improper feeding is basically insufficient food from low calorie intake, from over-diluted supplementary milk foods, from infrequent feeding when mother is working. Infections are recurrent diarrhoea, measles, whooping cough, tuberculosis, recurrent URTI, urinary infections. Heavy infestations with ascariasis or trichuriasis (5.2.11). Underfeeding and infections go together.

Emotional factors also may contribute to loss of appetite and therefore of weight.

All children failing to gain or losing weight must be assessed with care to evaluate all contributory factors (5.2.5).

5.2.12.13. Hyperpyrexia.

1. In infants and young children take the temperature in the rectum. In older children the oral (under the tongue) position is best. The 'normal' rectal temperature is 36.5°C — 37°C about 0.5°C more than in the mouth.
2. Hyperpyrexia is dangerous and occurs in young infants and children much more easily than in older children over five years of age.
3. Increase of body temperature increases metabolism and calorie and fluid requirements.
4. An infection is the usual cause. Once the temperature rises it may be pushed up further if heat is not lost; as when the air is hot, the child is covered with clothes, or the room is not ventilated. A temperature over 41°C (106°F) if continued causes permanent neurological damage.
5. Examine the child for infection in throat, ears, local abscesses (including teeth), lungs, meninges; an enlarged spleen may indicate malaria or enteric fever. Examine urine for pus cells. Take blood specimens for examination for malaria.
6. Give Aspirin or Paracetamol (can be repeated 3 or 4 times a day).
7. Use cold or tepid sponges on forehead, limbs and trunk to control the temperature. Some parents object if cold sponges are put on the child's trunk or if there is a breeze. If so the door should be closed and the sponge put only on forehead and limbs.

Table 6
Oedema of Skin or Tissues in Children

Characteristic points	Kwashiorkor	Nephrosis	Acute Nephritis
Age in years commonly seen	2—4	3—6	8—12
Onset	Gradual	Gradual	Sudden
Past history of oedema	Possibly	No (if first attack)	No
Common site	All over, beginning legs and feet	All over, beginning eyelids	Eyelids, face and feet
Severity	Mild to severe	May be gross	Mild
Dietetic history	Poor protein intake	Normal	Normal
Diminished urinary output	No	Yes	Slight to moderate
Diagnostic points	Skin and hair changes. Misery	Massive oedema and albuminuria	Hypertension. Haematuria
Urine	Albumen absent or trace	Massive albuminuria	Plenty of RBC and epithelial and RBC casts. Albumen.

Chronic Congestive Failure	Indian Childhood Cirrhosis	Severe Anaemia	Allergy
Congenital early. Rheumatic 8 onwards	2-3	2-4	Any age
Sudden	Gradual	Gradual	Sudden
Sometimes	Rarely	Rarely	Unlikely
Legs, later face	Legs, later all over	Legs, later face	Face and legs
Mild-Severe	Moderate	Mild	Mild
Normal	Normal	Poor intake	Normal
Moderate	Nil or slight	No	No
Dyspnoea. Cyanosis. Large liver. Cardiac signs.	Big liver. Ascites. Big spleen. Jaundice.	Severe pallor Low haemoglobin	Urticaria rash or weals
Normal or trace of albumen	Bile	Normal	Normal

5.2.12.13

5.2.12.14

5.2.12.15

8. Treat any infection with a suitable antibiotic. Give Chloroquine if malaria is suspected. Check dosage and frequency of any drugs already given.

5.2.12.14. The Pale Child.

1. Anaemia is common: six in ten children are anaemic and in two the anaemia will be moderate or severe.
2. Deficiency of Iron in food is the commonest cause. Few children have Folic Acid deficiency and even fewer Vitamin B₁₂ deficiency (5.2.5). Human and other milks are poor sources of Iron. Anaemia in infancy can be prevented if expectant women receive Iron and Folic Acid during the last three months of pregnancy and if they will take Iron rich foods. If maternal supply of Iron is insufficient the newborn infant has little stored in the liver and reticulo-endothelial system. Since milk is not a good source, prevention depends upon the early introduction of cereal foods. Green leafy vegetables, jaggery, dates are good sources of Iron, pulses and cereals like ragi, jower (sorghum), bajara and wheat also contain Iron. Infants and young children given cereals by five months do not develop severe anaemia and if the food also contains jaggery and green vegetables then the child should not be anaemic.
3. Anaemic children are rarely brought because of pallor but for breathlessness, palpitations or repeated infections.
4. Anaemia may be due to haemolysis (destruction of circulating RBC) or to blood loss.
5. For clinical purposes, mild anaemia is Hb 8–11g per cent, moderate anaemia Hb 5–8g per cent, and severe anaemia Hb 5g per cent. Health workers must be trained to assess the degree of anaemia clinically from examination of the conjunctivae and nails.
6. In moderate and severe anaemia examine a peripheral blood slide for abnormal RBC and leucocytes; a stool for hookworms; urine for pus cells and do a tuberculin test.
7. Manage mild degrees with Iron therapy and correction of food intake. Give moderate cases Ferrous sulphate, for infants 200mg daily ($\frac{1}{2}$ tablet bd), for school children 1 tablet twice a day, for 2–4 weeks.
In severe anaemia give intramuscular Iron 50mg for a week and then oral Iron (as above) for one month. Investigate as in (6) above. If any suspicion of haemolytic anaemia refer to hospital.

5.2.12.15. Failure to Move a Limb or Limbs.

In the newborn, immediately after birth

1. Injuries to peripheral nerves, e.g. in Erb's palsy due to stretching or tearing of the upper roots of the brachial plexus.
2. Fracture of the shaft of a long bone.
3. Separation of an epiphysis, e.g. after traction on legs during breech delivery.

In the second or third week

4. Osteitis or acute arthritis.
5. Congenital syphilis.

In infants and children

1. Neurological causes.
 - a. Cerebral palsy from birth trauma.
 - b. Poliomyelitis.
 - c. Hemiplegia or monoplegia following bacterial meningitis.
 - d. Post diphtheritic polyneuritis.
 - e. Infective polyneuritis.
2. Other causes of failure to move — pseudoparalysis.
 - a. Injury.
 - b. Acute arthritis.
 - c. Acute osteitis.
 - d. Scurvy.
 - e. Congenital syphilis.

5.2.12.16. Failure to Thrive or Develop.

This term or one like it is used by parents and health workers to describe the child whose physical growth, whose motor skills or whose behavioural pattern do not correspond with expectations for age: that is for the child who fails to grow or fails to reach the motor or emotional milestones described in 5.5.2 Table 3).

When this happens you must think of:

1. Congenital mental subnormality.
2. Secondary intellectual retardation following infection or injury in CNS.
3. Chronic infective illness e.g. chronic urinary infection.
4. Severe nutritional deficiency.
5. Endocrine disease, hypothyroidism or hypopituitarism.
6. Specific syndromes associated with slow development and physical changes e.g. Mongolism (Down's Syndrome).
7. Failure in a specific function may be due to a single lesion e.g. speech failure from deafness.

Investigation of the child requires a full history and examination, assessment of the degree of retardation and perhaps special investigation. Treatment depends upon cause but curative treatment is not always possible — difficult for parents to accept, they require considerable help.

Support can be given by helping them to understand the cause of the handicap, and how much can be done to reduce or compensate for it. Only in this way can you prevent undue expense on remedies which have little value and a natural but unavailing search for a cure which is not possible. You must know if there are any means of helping handicapped children in your area, by reference to hospital, by help from special institutions or funds. If there are institutions for the deaf or blind or other handicaps nearby you should make a visit to inform yourself upon the facilities available.

5.2.12.17. Accidents and Poisoning.

Both common in children. Types of accidents and poisoning vary in different age groups and in rural and urban situations. Most occur between one and four years of age as children explore their surroundings. Boys have twice as many accidents as girls, the commonest being: falls, cuts, burns, road accidents, poisoning, snake or scorpion bites.

Small children fall from cots or cradles; toddlers from objects inside the home or stairs; older children from walls or out of trees.

Cuts by sharp instruments, knives and blades occur in children who live in small cramped houses. These instruments are kept on the floor or are easily reached. Children are curious and cut themselves imitating the use of shaving sets, knives, etc.

Scalds caused by hot water, tea or milk. Utensils with handles are kept on the fire or cooking stove and infants or young children catch or strike the handle while walking or playing. Sometimes the clothes of small children catch fire when they move too near a stove or fire.

60–70 per cent of the poisoning in towns and cities is due to kerosene, while in villages seeds are the commonest cause. Common poisons can be listed.

In villages	In cities
Seeds	Kerosene
Castor oil seeds	Drugs and chemicals
‘Dhatura’ seeds	Aspirin
‘Ratten Jyot’ seeds	Barbiturates
Oleander seeds	DDS
Food poisoning	Potassium Permanganate
Pesticides and insecticides	Food poisoning
Kerosene poisoning	Insecticides
Drugs like Aspirin	Diazanone
	Rat poison

More than 80 per cent of poisoning occurs in second or third years. Signs of seed poisoning: vomiting, pain in abdomen and loose motions. Dhatura seeds cause symptoms similar to atropine, viz: raised body temperature, delirium, tachycardia and dilated pupils. Kerosene causes fever and vomiting and, excreted through lungs, causes cough, breathlessness, pneumonitis, pulmonary oedema and sometimes surgical emphysema. If a large quantity of kerosene is ingested convulsions and coma may follow.

In many homes drugs are kept in places easily reached by young children. Aspirin, barbiturates, DDS and liniments are the commonest drugs accidentally ingested.

Snake and scorpion bites are common in villages particularly in hilly or forest areas. Symptoms and signs depend upon the amount of venom injected.

Commonest snakes are:

1. Cobra, venom contains neurotoxins. Signs: headache, dizziness, glosso-pharyngeal and respiratory paralysis and failure.
2. Kraits cause haemolysis and neuro-paralysis.

3. Some water snakes are poisonous, the bites causing shock, with peripheral vascular failure, nausea, vomiting and palpitations. There is bruising at the site of the bite and fang marks.
4. Viper venom is cytotoxic and haemolytic. Vipers inject slowly and damage the local tissues causing bruising and laceration: severe local pain, swelling and discolouration with blood-stained serum oozing from the wound. Area may become gangrenous. Patient bleeds from gums, nose and other organs and goes into cardiac failure.

A scorpion sting is difficult to recognise in absence of a definite history. Suggestive indications are a sudden cry followed by profuse sweating, signs of peripheral circulatory failure, tachycardia and pain at the site of the sting.

The inhalation or swallowing of foreign bodies, objects such as water melon or tamarind seeds, ground-nuts, metallic discs or coins, buttons and pins, is common.

Accidents need immediate attention. If the child has fallen he must be examined to determine if there is any fracture or intracranial injury. Painless movements of joints, absence of local crepitations or tenderness of the bones, normal neonatal and other reflexes in small infants, free movements, normal pupils, no signs of raised intracranial pressure or filling-up of spaces like pleural cavities suggest the absence of serious injury. If you suspect any intracranial injury observe the patient for two to three days if possible.

Clean and bandage cuts so that bleeding stops. If there is bruising, laceration or a deep wound give 1500 units of anti-tetanus serum after a sensitivity test or if the patient has been immunized a booster dose of Tetanus Toxoid. ATS is often administered for cuts with sharp and superficial injuries when there is hardly any chance of infection with tetanus. Such injections of serum may sensitise a child to future injections.

Do not put water on a burnt area, apply an ointment containing antibiotic. Give ATS if there is likelihood of tissue necrosis. If peripheral failure develops IV fluid, Glucose Saline 5 per cent, is necessary. When large or many small blisters burst or skin is removed the child may lose so much serum that transfusion is desirable. Children with burns or large scalds should be kept on antibiotics, adequate fluids and proper feeding. Move to hospital if affected area is large.

Manage road accidents like any others. Make a thorough physical examination to rule out deeper injuries.

Give children thought to be poisoned either a stomach wash or a dose of emetic. Induce vomiting by tickling the back of the throat or by two teaspoonfuls of salt in a glass (250ml — 8oz) of water. Syrup Ipecacuanha 5ml to 20ml water induces vomiting. This can be repeated after fifteen minutes. Do stomach washing with ordinary water or saline in poisoning where child has taken a large amount of the material. In corrosive poisoning, do not attempt stomach wash-out. In kerosene poisoning take care, while removing the tube, to prevent material containing Kerosene entering the larynx and lungs. It causes severe pneumonitis and damages lung tissue. Thus lavage should be done only if the child has swallowed a large amount. Flush the tube to remove all Kerosene before withdrawal from stomach. To prevent intestinal absorption

of the poison, a non-specific absorbent like activated charcoal powder, egg albumin or milk should be given after the gastric lavage. If the Kerosene has been swallowed for some hours give a purgative to minimise absorption.

Give prophylactic injection Procaine penicillin, and Oxygen inhalation if breathless. Keep watch for development of pneumothorax or surgical emphysema.

Children who are shocked must be kept warm. If necessary give a stimulant like coffee, oxygen and IV fluids. Specific antidotes are sometimes available such as Pilocarpine in Belladonna or Datura seed poisoning and Injection Atropine in Diazanone poisoning.

Snake bites cause great fear. Even fatal shock may develop. Give children Phenobarbitone and if shocked injections of Adrenaline or Coramine. Keep the leg lower than the body and packed with ice if it is available. Fix a tight ligature proximal to the bite: loosen it for one minute in every fifteen. If a small linear incision is made at the site of the bite venom can be sucked by anyone sure he has no cuts or ulcers on his lips or in his mouth. The toxin can be counteracted by 20–30ml Polyvalent serum, half the amount subcutaneously at the local site and half intravenously or intramuscularly. Give the whole amount intravenously to people who come immediately after the bite. If anaphylactic serum shock develops give Adrenaline subcutaneously. After the first aid measures give patient Tetanus toxoid and begin antibiotics.

Manage scorpion stings by local injection of Lignocaine 2–4ml 1 per cent and intravenous dose of “cocktail” of Pethidine 100mg, Chlorpromazine 50mg and Phenergan 50mg, in a dose of 0.3mg/kg body weight. This can be repeated every 30 minutes until there is an improvement.

Most foreign bodies in GI tract will pass through unchanged and should not cause any anxiety; the saying that “anything which will pass through the lower oesophagus can pass through the rest of the intestinal tract” is a good clinical guide. Give children 2–4 bananas and bulky food. Examine stools for the passage of the foreign body. If any signs of obstruction develop, send the child to hospital.

Do not attempt to remove a foreign body from the respiratory tract by hand. The object frequently moves causing more severe respiratory obstruction. Send these children to hospital.

Drowning occurs when unattended or adventurous children fall into ponds, tanks or rivers. A small child can drown in a few inches of water. Clear the air passages, help drainage by holding the child by the feet with head downward or if larger turning him on the stomach with face to one side if possible with head lower than chest. Give mouth to mouth respiration and follow with artificial respiration.

5.2.13. Care of the Child at Birth and in the first month.

You as medical officer will not be directly concerned in this care when all goes well: yet you must be familiar with the details of care to maintain the training of female health workers and dais in villages, and also so you must be able to indicate where care has failed you when trouble arises. You will be consulted when children are ill and you will have opportunities for education and teaching of health workers and family.

Care of infant — directions for nurse (6.2.10.1).

If breathing is delayed and the infant remains blue, or if he is pale and limp, then resuscitate. (6.2.10.3).

First examination at birth.

Objectives: to look for normal functioning of body systems, external signs of congenital abnormalities, signs of birth injury.

1. Cardio-vascular system: respiration should be continuous (not necessarily regular) without signs of obstruction. Lips and tongue pink. Pulse (or apex beat) strong and regular on auscultation, no cardiac impulse visible.
2. Central Nervous System. Good tone in arms and legs but posture depends upon intra-uterine position — normal vertex is general flexion. Head circumference. No spinal defect.
3. Gastro-intestinal tract. The mature infant is ready to suckle and swallow without difficulty. Meconium is soon passed, black and without smell; sometimes delayed by a white plug of hard mucus but not longer than forty-eight hours.
4. Urinary: passes urine within a few hours of birth. Examine penis for hypospadias.
5. Muscles, bones and peripheral nerves. Note movement of limbs and position of rest. If a limb does not move think of injury to bone or to nerve supply.

Important danger signs.

Cardio-vascular system:

Blueness continuous or intermittent — congenital heart disease.

Undue pallor — suggesting anaemia.

Respiratory system:

Intermittent respirations, prematurity;

Forced with sternal and intercostal recession — inhalation foreign material;

Rapid with cyanosis, lung infection or inhalation;

Delayed onset of breathing.

Nervous system:

Intra-uterine asphyxia:

Rapid shallow respiration, limp infant.

Cerebral haemorrhage:

Bulging fontanelle, increased skull circumference, fits, alteration in respirations as above

Hydrocephalus:

Large head, wide separation of sutures; irregular edge to cranial bones.

Microcephaly:

Small head, failure of brain development.

Spina bifida:

1. Covered by skin, with sac at any level from neck to sacrum.
2. Covered by meninges.
3. Open, nerve tissue exposed, limbs and sphincters paralysed.

Hare lip;**Cleft palate:**

These malformations may appear singly or together, and each may be of any degree of severity.

Gastro-intestinal:

'Bubbling' and cyanosis, suspect oesophageal atresia.

Immediate and continued vomiting, high intestinal obstruction.

Abdominal distension, imperforate anus, meconium plug, low intestinal obstruction, enlarged kidneys — polycystic.

During Puerperium:

Note the infants capacity to suckle and retain food, pass stools and urine.

Note movements and sleep pattern.

Note conditions of cord, cleanliness, separation, healing.

Mother's care of the breasts.

Care of infant's skin.

Care of eyes.

Discussion of circumcision might be necessary.

5.2.14. Vaccination and Immunization.

Acute infective illness are most dangerous in the first 7 years, particularly in malnourished children. Fortunately you can protect children either completely or enough to prevent major complications.

Protection can be given against tetanus; typhoid and paratyphoid A & B; whooping cough; diphtheria; tuberculosis; measles; anterior poliomyelitis and rubella.

1. Protect as many children as possible. Give protection in an orderly way from birth.
2. Link immunizations with the 'Under Fives' clinics as well as in special camps and campaigns.
3. Your techniques of storage, distribution and protection must be such that you use potent preparations in the correct way. Link immunization with education so that the parents know what to expect.
4. Record injections and doses so that the child's immunization state is always known — this is best done on the 'Under Fives' chart.
5. For the recommended immunization schedule (1981) see Table 7.

Smallpox (6.2.8.2).

India was declared free from smallpox in 1975 and smallpox vaccination is no longer necessary.

Tuberculosis (6.2.8.1).

BCG is a living attenuated bovine mycobacterium (6.2.5).

Rationale is to give the vaccinated person a primary tuberculosis infection with a non-pathogenic organism. The small papule (sometimes a small ulcer) at

the site of injection is the primary focus. From the injection site at the insertion of the deltoid organisms travel to regional nodes (axilla) and later spread about the body. Sensitivity to tuberculin can be demonstrated in 6–10 weeks. It is not as strong as with natural infection and sensitivity does not parallel protection. Local lesion heals in ten or twelve weeks. If it persists longer or extends healing can be quickened with oral INH.

BCG gives good protection against the blood spread complications of natural infection — it does **not** give absolute immunity.

If a vaccinated child is exposed to heavy infection or is malnourished major complications can occur. But this is uncommon and BCG is an important measure of protection in any community where infective tuberculosis is common.

Diphtheria, Whooping cough (Pertussis) and Tetanus (6.2.8.3).

Triple Antigen (DPT) is used to protect against diphtheria, whooping cough and tetanus. The protection developed is active and lasting although the vaccine is a mixture of toxoids. DPT can be given either into the arm or outer side of the thigh. Occasionally the arm is sore locally for 24–48 hours. If given too superficially a hard area may result which leaves a depressed scar. Give the double vaccine (DT) to any child with a history of convulsions or of epilepsy in the family. Do not give pertussis vaccine after 2 years of age.

Protection of the newborn against tetanus can be obtained by giving each expectant mother two doses of tetanus toxoid at four week intervals during the last four months of pregnancy (Table 7). Tetanus must be avoided by careful techniques and cleanliness at delivery and until the cord is firmly healed.

Anterior poliomyelitis vaccine, also an attenuated living vaccine, is given orally. It must be carefully stored and used for it is readily killed by warmth. It is not given routinely in rural communities.

Measles vaccine, an attenuated living virus, gives lasting protection. It is not yet available for general use.

Rabies vaccination (6.2.8.5).

Must only be done by medical officer. Give only when absolutely indicated. Never repeat central nervous system type of vaccine. Dangers are sensitivity reactions, particularly encephalopathies. If treatment is indicated refer to hospital if possible. Vaccine may be held at district hospital where enquiry should be made and matters of doubt referred for treatment or guidance.

Cholera vaccine gives protection for 6 months only and is therefore used only in local outbreaks.

Contraindications to immunizations

1. Any fever.
2. In acute gastro-enteritis or infectious disease — delay for two weeks after recovery.
3. Children on immunosuppressive therapy — cortico-steroids or cyto-toxic drugs — wait for four to six weeks after the drug has been discontinued.
4. In children with history of convulsive disorders or with mental retardation do not give pertussis.
5. Do not give Pertussis Vaccine to children more than 2 years of age.
6. Children with known positive tuberculin test or known tuberculosis should not be given BCG.
7. Children with known agammaglobinaemia or dysgammaglobulinaemia.

Table 7

Schedule of Vaccinations recommended by Ministry of Health and Family Welfare, Government of India (1981)

Age	Vaccination	
Pre-natal		
16–20 weeks	Tetanus Toxoid	1st dose
20–24 weeks	—do—	2nd dose
] for the expectant mother	
Children		
3–9 months	BCG Vaccine	
	Diphtheria–Pertuss–Tetanus (Triple vaccine) – 3 doses at an interval of 1–2 months	
	Polio (Trivalent oral vaccine) 3 doses at an interval of 1–2 months.	
9–12 months	Measles vaccine: one dose.	
18–24 months	D.P.T. Triple vaccine booster dose	
	Polio (Trivalent oral vaccine) booster dose.	
5–6 years	Diphtheria–Tetanus (Bivalent vaccine) booster dose.	
	Typhoid (Monovalent or Bivalent vaccine) first dose.	
	Followed after 1/2 months by the second.	
10 years	Tetanus Toxoid Booster dose	
	Typhoid (Monovalent or Bivalent vaccine) Booster dose.	
16 years	Tetanus Toxoid booster dose	
	Typhoid (Monovalent or Bivalent vaccine) booster dose.	

Pre-natal: For a mother who has been immunized, one booster dose of Tetanus Toxoid should be given in a subsequent pregnancy preferably four weeks before the expected date of delivery.

Children: The ages indicated are considered to be the best times. However if there is delay in starting the first dose of Triple vaccine adjust the ages accordingly. Ensure that a child receives BCG, DPT and Polio vaccination where available, before reaching one year of age. The vaccines indicated against the various age group can be given simultaneously: example, BCG, Triple vaccine and Polio vaccine at 3–9 months. When typhoid vaccine is given for the first time two doses at an interval of 1–2 months are required.

CHAPTER 6

The Skills you must have as Clinician, Teacher and Manager

Section 6.1. TECHNIQUES OF MATERNAL CARE

6.1.1. Introduction

It is not sufficient to know about a patient, why a patient is ill or how to prevent an illness. You must be able to do whatever is required in any particular situation. It is the difference between understanding how an engine works and being able to repair a fault. To transmit knowledge into action, skill with hands and willpower are both required — the skills relate to the roles you play as clinician, teacher and manager and are shown in knowing the way to do something and then doing it.

While posted to a Community Block you must be able to work with the health team to deliver MCH care to mothers and children. This does not mean you can undertake every operative technique but it does mean that you must be able to judge when you need to refer patients for care, must have a mechanism to do so and be able to act in an emergency when the patient cannot or will not go to hospital.

This handbook cannot give details of all operative procedures you may require. It is designed to emphasise important practical techniques you will need in your work or may be compelled to undertake in extreme emergencies.

At times you must consult the reference books you will have in the PHC (Chap.10).

You must remember that certain conditions apply to all techniques and skills. **Remember** the following:

1. Practice is required to acquire skill.
2. Careful preparation is the secret of success.
3. Always make the physical conditions (light etc., as good as possible.
4. For emergencies which come commonly and suddenly, it is good to have material already prepared for immediate use.
5. Always be as economical as possible of material and drugs.
6. Always ensure that instruments are carefully cleaned, prepared and sterilised for use next time.
7. Needles and knives etc. must be sharp.
8. Do everything as simply as possible.
9. Understand the use of apparatus and be ready to improvise and use the skills of local craftsmen.
10. Teach others, e.g. FHW's can give intravenous infusions.
11. The skill of organising and managing a team so that the members work well together is just as necessary as your manual skill of operating.
12. The methods described here are suitable for work in a PHC or subcentre and may differ in detail from techniques you have seen used in hospital.

6.1.2
6.1.2.1
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6.1.2.3

6.1.2. Clinical Techniques Associated with Pregnancy.

6.1.2.1. Clinical diagnosis of early pregnancy.

In addition to softening of the vagina and cervix and enlargement of the uterus, Hegar's sign is important. To elicit this introduce two fingers into the vagina, posteriorly behind the cervix while the fingers of the external hand are pressed down into the abdomen from just above the symphysis pubis. The fingers of the two hands will almost meet as if there was no resisting tissue between. The cervix and body of the uterus will appear as two independent masses. This sign is more difficult to recognise in a multigravida. When present it constitutes one of the most valuable physical signs of early pregnancy. It is positive from about the sixth to the twelfth weeks of pregnancy.

6.1.2.2. Assessment of Cephalo-Pelvic disproportion.

The fit of the foetal head and the pelvic brim. Place patient in dorsal position. Grasp the foetal head with one hand and press it into the pelvic brim. With aseptic precautions, two fingers of your other hand are passed into the vagina. The thumb of the same hand palpates the head over the symphysis pubis. The relative sizes of the foetal head and maternal pelvis are then gauged by the descent of the head into the pelvis or the degree of over-riding of the head over the symphysis. Thus a diagnosis of no disproportion, mild or major disproportion can be made. The assessment is usually done after the 38th week of pregnancy.

6.1.2.3. Episiotomy.

Perform only mediolateral episiotomy (Fig.12). Timing is important. Do it when the head or breech is crowning the vulva and does not recede into the vagina between uterine contractions. Start at the mid point of the lower vulval rim. Infiltrate line of incision Lignocaine 5ml 1 per cent. Incline your cut about 15° – 20° from the mid-line to avoid the anal sphincter. Direct it towards the ischial tuberosity and preferably on the same side as the occiput. Do it only on one side – left or right. Do not make it small. After the delivery of the placenta suture the episiotomy in two layers using chromic catgut No.0. Suture the cut vaginal mucosa first (continuous sutures). Use interrupted stitches for the cut muscle and fascia. Close the skin incision with either nylon or linen interrupted sutures. Catgut may be used but chances of infection are greater. Apply sterile dressings. Change dressing every time patient passes urine or faeces. Remove skin sutures within a week – earlier if there is infection. Cover wound with plastic spray dressing if available.

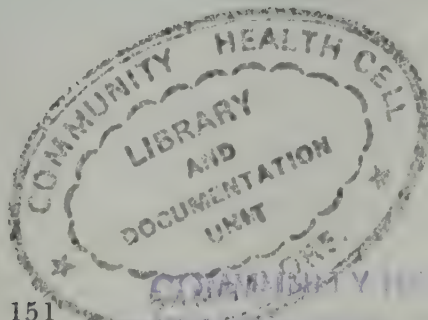


Figure 12.

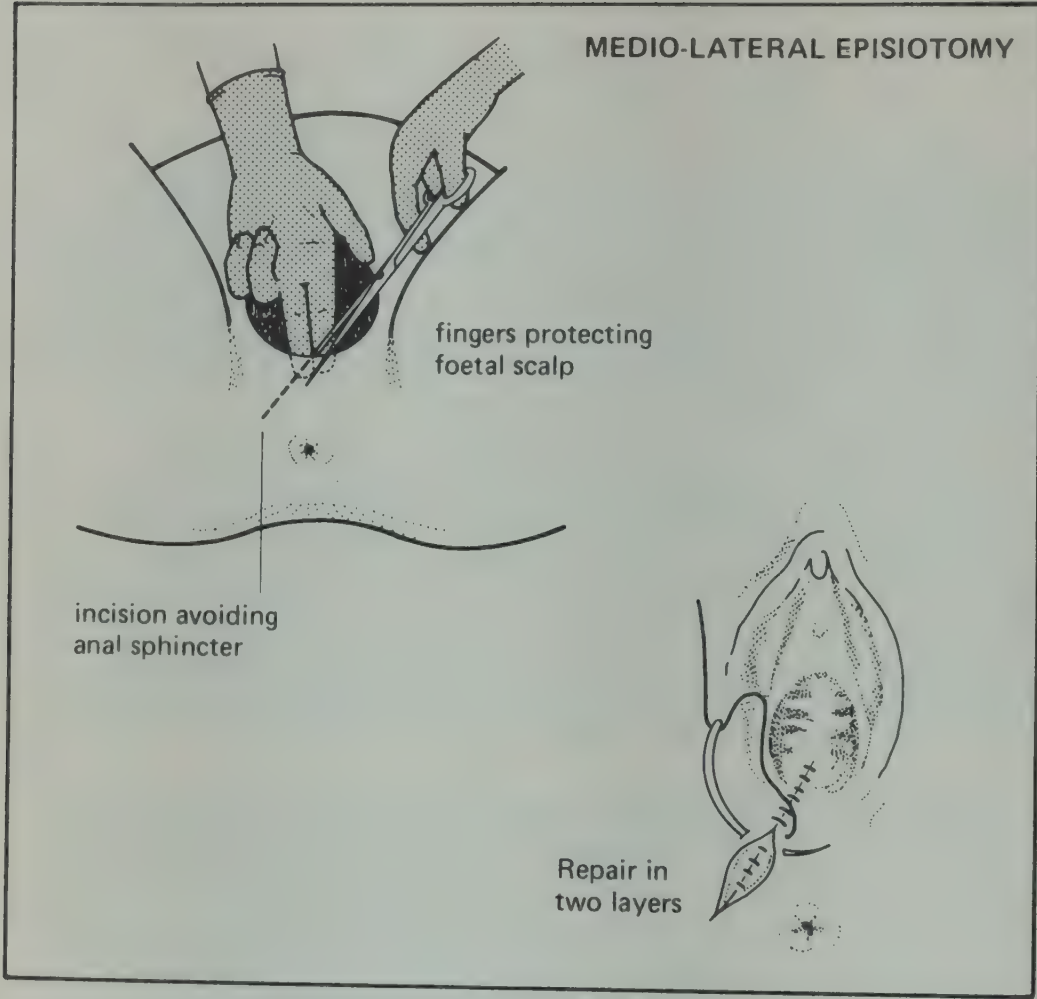
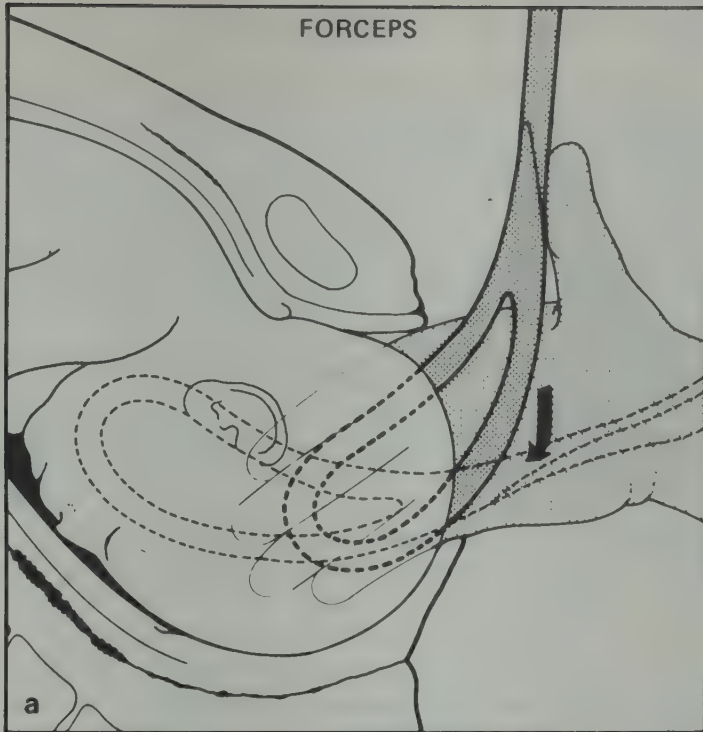
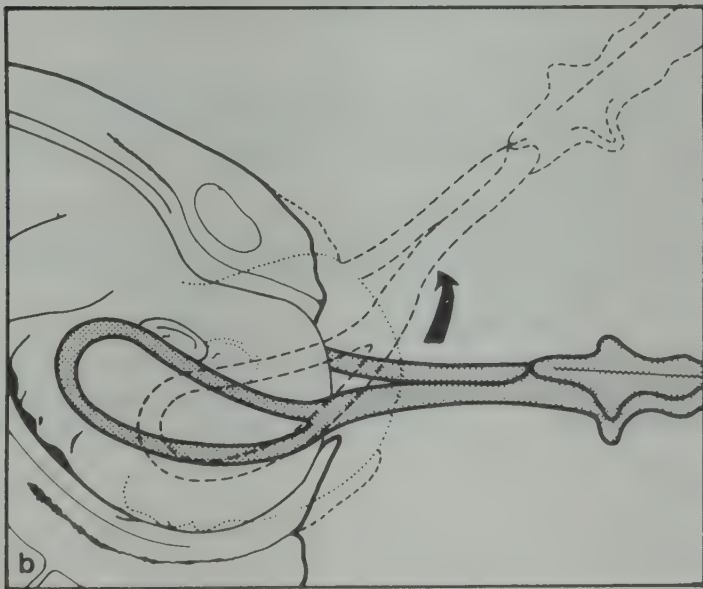


Figure 13



Low forceps. Introduce the left blade into the left side of the pelvis with your left hand. Use the fingers of your right hand to protect the mother while your thumb guides the blade into place.



Direct traction outwards and upwards as indicated

6.1.2.4. Delivery by Forceps.

Only low forceps is done at PHC except in extreme emergency. Important points are:

1. Do not apply forceps unless definite indications are present: maternal or foetal distress or an abnormally prolonged second stage, due to failure of secondary forces.
2. Make sure by vaginal examination that the cervix is fully dilated and taken up. (The cervix will not be felt on vaginal examination.)
3. The greatest diameter of the head should have gone through the brim of the pelvis (head below ischial spines) and the membranes absent. Do not apply for forceps to the breech.
4. Always try to apply the forceps to the ends of the biparietal diameter, i.e. cephalic application.
5. If possible avoid general anaesthesia. Use local infiltration or pudendal block anaesthesia (6.1.3). In a primigravida always do an episiotomy (6.1.2.3).

Low forceps.

1. When the head is on the perineum, give the mother Pethidine 100mg and Chlorpromazine 25mg intramuscularly instead of pudendal block. Within 15–20 minutes the patient will usually be sufficiently sedated to enable you to deliver by outlet forceps and to suture the episiotomy.
2. When the head is at the outlet use the straight forceps, the axis traction forceps without the rods or the vacuum extractor (6.1.2.5).
3. Place patient in lithotomy position with thighs flexed at the hips and legs at the knee. The legs are held apart either by an assistant or by straps hooked into the labour board. Make a vaginal examination and determine the position of the head and its level in the pelvis.
4. Apply the forceps to the sides of the head. Do not use force. Gently slip in the blades on either side: first, left blade held in left hand, then right blade held in right hand. (Fig.13).
5. After the blades lock apply traction in the axis of the pelvis forward and upwards when the head is on the perineum. Use steady traction with arm force only. (Never use body weight). Simulate labour contractions — pull, relax, pull etc. (Fig.13).
6. Control exit of the head with the forceps. Do not allow the head to jump out.
7. Once the head is delivered remove the blades of the forceps and complete delivery of the child, Always be ready to treat asphyxia.
8. After delivery of the placenta, if there is heavy bleeding despite a well contracted uterus, look for cervical or vaginal lacerations by inserting a speculum and identifying the cervix. Suture any bleeding lacerations seen on the cervix or the vagina. Do not inspect the cervix unless there is a reason such as bleeding.

Mid-cavity Forceps.

1. Sometimes forceps are required before the head has reached the perineum. Most often this is in occipito posterior position with total or partial failure of rotation of the head. If you are forced to delivery with the head above the level of the ischial spines, vacuum extraction is safer than forceps delivery. If you have the equipment, apply vacuum traction (see below). This traction

not only helps to bring the head down but also helps forward rotation of the occiput so that delivery can be completed.

2. If a vacuum extractor is not available, you must use axis traction forceps for delivery as the traction has to be in the axis of the pelvis at a higher level. Try to locate the lobes of the ears by vaginal examination and apply the blades over the ears (the blades will then be at the ends of the biparietal diameter). In delayed cases you might not find the ears and you must then apply the blades to the sides of the foetal head. Apply traction in the axis of the pelvis — downwards and slightly backwards first, then downwards and forwards and forwards and upwards when the head is at the outlet. Occasionally the forceps begin to turn as you pull. Help the rotation which is due to the foetal head turning itself. On the other hand if you have diagnosed the position correctly you may as you pull gently, rotate the occiput to the front with forceps. Remember forceps rotation can damage both mother and child; you must be as gentle as you can. By the time the rotation is completed the forceps blades may lie in the antero-posterior diameter of the pelvis: then remove the blades and reapply them to the sides of the head to complete the delivery. These are difficult cases and if diagnosed early are best dealt with at hospital.

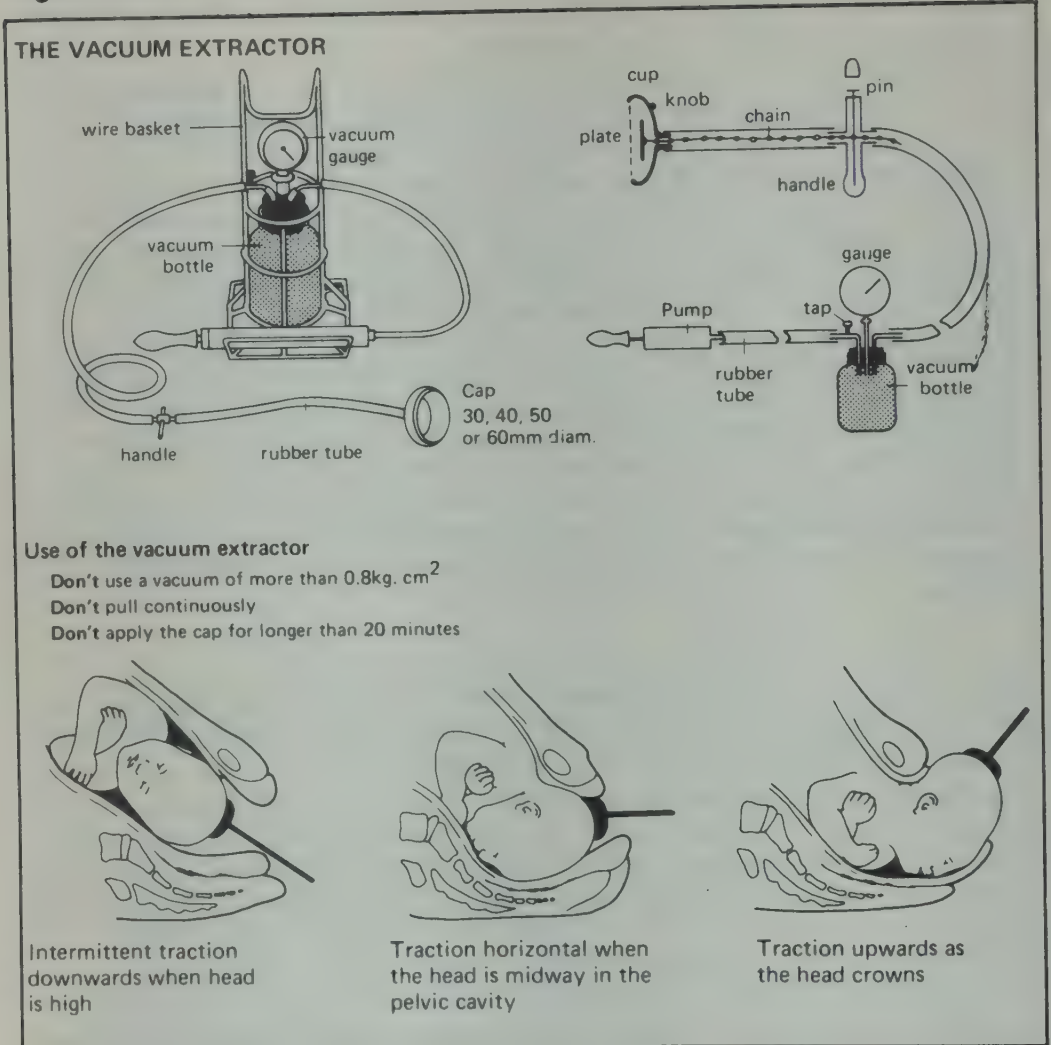
6.1.2.5. Delivery by vacuum extraction.

The instrument consists of the vacuum bottle, pressure gauge and three metal pipes (chains inside rubber tubing), pump and pump hose (Fig.14). There are also metal cups of 30, 40, 50 and 60mm diameter.

Extraction is done under local infiltration Lignocaine anaesthesia. A suitably sized cup is chosen and introduced by placing it edgewise into the vagina and pressing back strongly against the perineum. Controlled by two fingers the cup is pushed towards the head and placed in contact with the lowest or most posterior part. Avoid placing the cup too anteriorly as the risk of detachment is increased. Hold the cup in place at the site chosen whilst an assistant creates a vacuum of about 0.3 kg cm^2 . The forefinger is then moved carefully around the rim of the cup to make sure the whole circumference is applied to the foetal head without the inclusion of any maternal tissues. After 2–3 minutes the vacuum is increased to 0.4 kg cm^2 and after a similar period to 0.6 kg cm^2 or 0.8 kg cm^2 at most. Do not begin traction until that process is finished. Traction should then be intermittent coinciding with uterine contractions and at right angles to the plane of the cup, otherwise an edge will lift and break the vacuum. Using traction with each uterine contraction complete the delivery (traction also stimulates uterine contractions in hypotonic inertia) (Fig.14).

Properly used vacuum extraction does not injure the mother and is therefore preferable to midcavity forceps. The main disadvantage is that delivery is relatively slow (20–30 minutes if there is foetal distress. Sometimes the cup slips and the vacuum is broken — it may be reapplied or delivery may be completed with forceps.

Figure 14.



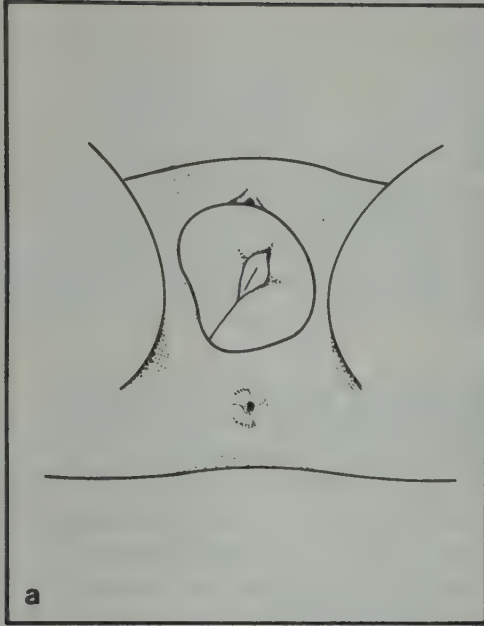
6.1.2.6. Assisted Breech Delivery.

Try hard to send to hospital: avoid at PHC. If you are forced to conduct the delivery at the PHC you and the parents must accept a higher risk of death of the baby.

When labour is established give the patient a sedative — Pethidine 100mg IM. Allow her plenty of time. When the membranes rupture make a vaginal examination to determine the degree of dilation of the cervix, the type of breech (extended or flexed), the level of the breech, and whether or not the cord is prolapsed. Unless cord is prolapsed allow labour to proceed normally. When you see the breech at the vulval outlet bring the patient to the edge of the bed and place her in lithotomy position. Wash up and be ready to render assistance.

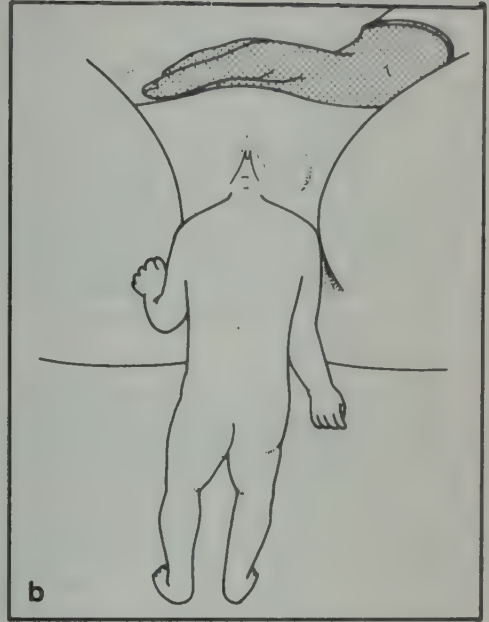
Figure 15

ASSISTED BREECH DELIVERY



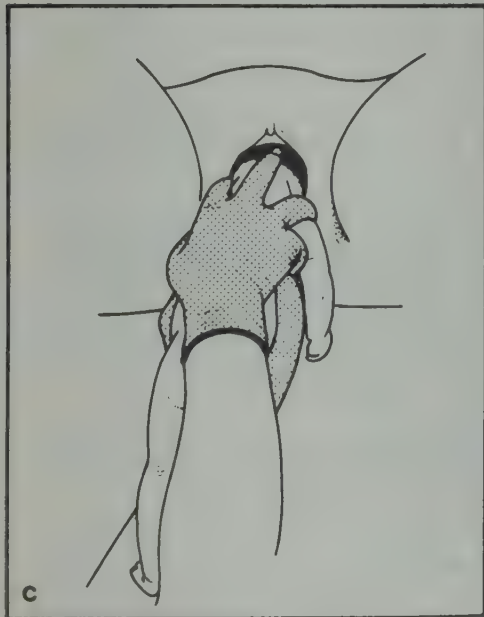
a

Both buttocks expelled, slight external rotation of breech, common with extended legs.



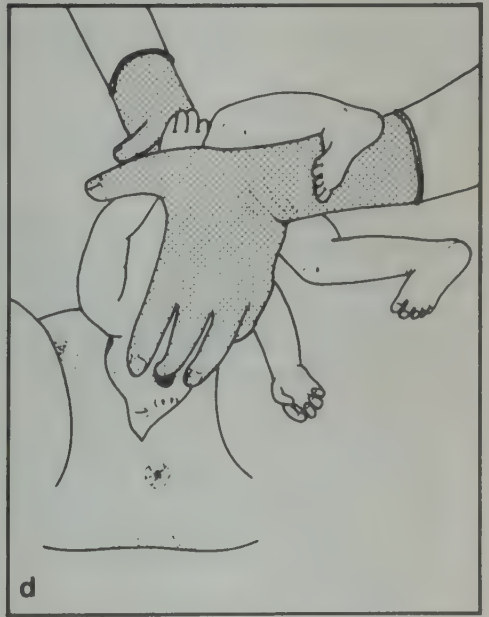
b

Allow child's body to hang.
Apply slight pressure above pelvis.



c

Traction downwards and backwards with your index and ring fingers on shoulders and middle finger splinting neck and helping flexion.



d

Traction now forwards. With your lefthand middle finger in baby's mouth to maintain flexion.

When the breech is crowning the perineum do an episiotomy. Do not pull on the breech or foot. As soon as the umbilicus is seen pull down a loop of the cord and keep it to one side. Normally with good pains the foetus is born up to the axillary fold without any trouble. Make sure that the baby's back is always facing you. Cover the exposed body with a towel. Ordinarily the arm, being flexed at the elbow and shoulder, is easily born — the posterior first and then the anterior. If arm is not flexed and there is delay, gentle and steady traction on the feet with the baby's back facing right or left will help to bring the axillary fold into view under the symphysis. As soon as the shoulder is seen pass a finger along the arm down to the elbow which is then flexed by gentle pressure on the joint. The hand drops down. Rotate the baby so that the posterior shoulder comes under the symphysis. Repeat the same procedure to deliver the posterior arm.

When the arms are delivered allow the baby to hang down from the vulval outlet with the back towards you. Catch hold of both feet in one hand and apply steady, gentle traction downward till the occiput is seen under the symphysis. Then applying steady traction lift the body over the mother's abdomen (Fig.15). If this manoeuvre is combined with gentle suprapubic pressure the head can be delivered. If it fails then support the baby astride your left forearm with the index or middle finger in the mouth. Slip your index and middle finger of the right hand over the clavicles from behind. Then apply traction downwards until the nape of the neck is seen when the direction is changed and the baby swung over the mother's abdomen at the same time pressing above the pubis. If the head is still not delivered and cord pulsations have ceased, you must perform craniotomy and deliver the foetus.

6.1.2.7. Internal Podalic Version.

Indications:

1. Second of twins.
2. Transverse lie with the cervix fully dilated and membranes intact or recently ruptured.

At the PHC **avoid internal version as far as possible**. If you can, limit to the second of twins only. Never attempt version unless the cervix is fully dilated. Never attempt version in cases where the amniotic fluid has drained away — if you have to do version, do it only in patients with intact membranes or membranes just ruptured. Remember the danger — rupture of the uterus — all movements in the uterus should be gently and steady — never jerky.

Technique when procedure **must** be attempted:

1. Under general anaesthesia place patient in lithotomy position. Bring her to the very edge of the bed or board.
2. Pass the gloved hand — (right or left) in the form of a cone — gradually into the uterine cavity through the vagina and the cervical canal.
3. Place the other hand over a sterile towel put over the abdomen. Use this hand to steady the uterus and to manipulate the foetal parts.
4. Guide the hand in the uterine cavity past the presenting part till it reaches the foetal knee.

5. Apply slight pressure on the posterior aspect of the knee. This causes the leg to flex and drop down if it is extended.
6. Pass the hand along the skin and catch the foot along with the heel.
7. By gentle traction bring the foot out of the cervical canal and vagina. It is **not** necessary to catch hold of both the feet and bring them down.
8. Gentle and steady traction is sufficient to allow the other foot and breech to be born. At this stage it may be of help to manipulate the foetus by the hand on the abdominal wall so as to allow the foot to come out through the cervical canal more easily and to guide the head towards the uterine fundus.
9. The rest of the process as for assisted breech delivery.
10. Remove placenta while patient is still under anaesthesia.

6.1.2.8. Caesarean Section.

Only done at PHC if no other course possible. Make every attempt to send patients requiring Caesarean Section to hospital. If you have no experience in performing a lower segment section then do a classical section (Fig.16).

Classical. Important points:

1. Anaesthesia — gas, oxygen and other inhalation anaesthesia is used but Local infiltration anaesthesia is safest in PHC.
2. Always start an intravenous glucose drip (5 per cent) before the operation.
3. One third of your abdominal incision should be above the umbilicus.
4. Open the abdomen and expose the upper uterine segment. Give the mother Methergin 0.2mg IV in infusion. Make an incision about 15cm (6 inches) long in the middle line of the uterus. Deepen it till you enter the uterine cavity. If the placenta is anterior cut through it. Be careful not to injure the foetus. Deliver the foetus. Give Oxytocin 10 units IV.
5. Hand the baby to the FHW (ANM) who should know how to treat asphyxia (5.2.13).
6. Remove the entire placenta manually. Explore the uterine cavity to make sure that no remnants or placenta or membranes have been left behind. Begin suturing the uterine incision using interrupted chromic catgut (No.0). Close the muscular layer in two layers. Between each suture there should not be more than 3mm (1/8 inch) gap. The first layer of sutures should include three-fourths of the thickness of the muscle and should not include the endometrium. The second layer takes in the rest and is covered by suturing the visceral peritoneum over it (continuous suture).
7. Make sure the uterus is well contracted before starting peritoneal closure. If it is lax inject Oxytocin 5 units and Methergin 0.2mg into the uterine musculature. Clear out all blood and clots and amniotic fluid from the peritoneal cavity and close the abdomen in layers. Clear the vagina of any blood and blood clots. Use antibiotics post-operatively and be prepared to treat post-operative distension and peritonitis if necessary.
8. Whenever you do a classical Caesarean Section in a multigravida do tubal sterilisation also.

Figure 16

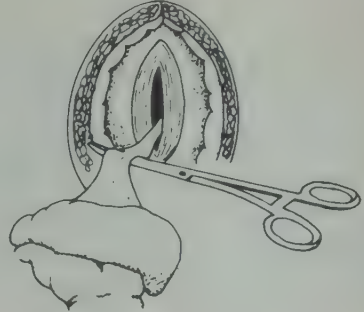
CLASSICAL CAESAREAN SECTION



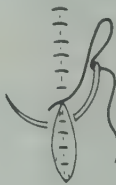
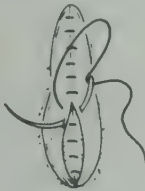
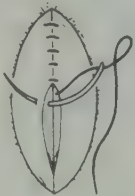
Abdominal contents are packed off and the uterus is opened in the midline



The easiest way to remove the baby is to pull it out gently by the legs

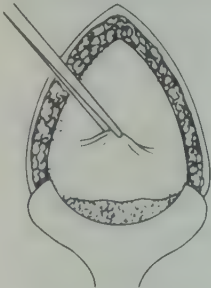


Delivery of placenta and membranes. All membranes must be carefully and completely removed.

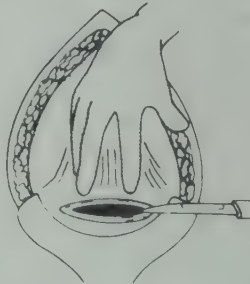


The wound is closed in three layers

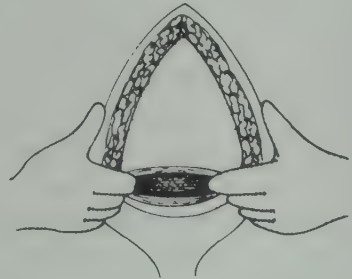
LOWER SEGMENT SECTION



Pelvic contents are packed off, and loose uterovesical peritoneum picked up

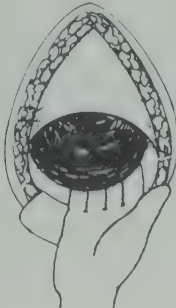


A small transverse incision is made in lower segment



The incision is widened with the fingers

The operator's right hand is passed into uterus to lift baby's head while the assistant presses on the fundus to push baby out



The wound is closed in two layers of No. 0 catgut

Lower segment Caesarean Section: A more difficult operation. If you have experience it is to be preferred to the classical, which has higher morbidity (Fig.16).

Important points are:

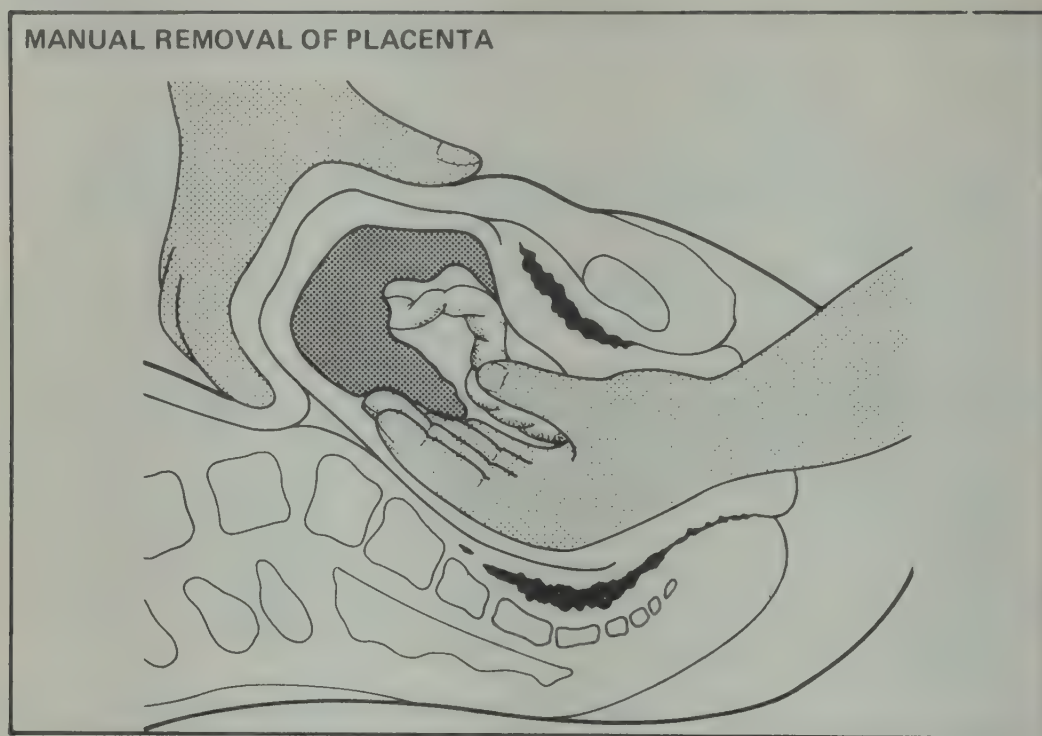
1. The bladder must be completely emptied by catheter prior to operation. The incision is subumbilical and should extend as close to the symphysis pubis as possible.
2. By means of retractors expose the lower portion of the uterus. Incise the utero-vesical fold of peritoneum and push down the uterovesical peritoneum as low as you can over the lower uterine segment.
3. Before incising the uterus give the mother Methergin 0.2mg intravenously.
4. Make a transverse incision about 2.5cm (1 inch) long in the middle of the exposed lower segment. Deepen it till the uterine cavity is opened. Be careful not to injure the foetus. Extend the incision either by cutting or by hooking your index fingers at each end and stretching it in opposite directions. Make the incision curve a little upwards as you near the lateral borders of the uterus. This is to avoid the uterine vessels during extraction of the head.
5. Pass your hand behind the presenting part — usually head — and deliver it gently out of the uterine cavity. Once the head is delivered the body easily follows.
6. After the baby is delivered remove the placenta manually and make sure that nothing is left in the cavity.
7. Close the uterine incision in two layers — continuous or interrupted chromic catgut (No.0). Avoid catching the endometrium in the suture. Suture peritoneum over the uterine incision. Clean up the peritoneal cavity and close the abdomen in layers. Clear the vagina of any blood clots and blood. The post operative period is usually smoother than after a classical section. Give antibiotics post-operatively.

6.1.2.9. Craniotomy.

If foetus is dead and delivery not possible otherwise:

1. Fix the head by application of forceps or have an assistant apply suprapubic pressure.
2. Pass two fingers into the vagina and locate the site of perforation.
3. Grasp the perforator in your right hand and guide it along the palmar aspect of the fingers in the vagina to the foetal skull and push the blades through the skull by a slight drilling movement.
4. As soon as the skull is pierced open the blades producing a longitudinal slit. Close the perforator and turn it at right angles; open it again to make a crucial incision.
5. Stir up the brain matter and evacuate the contents. Complete the delivery with forceps if the cervix is fully dilated.
6. If not fully dilated wait — delivery often spontaneous. If not fully dilated after reasonable time, complete the delivery with forceps.

Figure 17.



6.1.2.10. Manual Removal of Placenta.

1. In PHC can be done under deep sedation — Pethidine 100mg and Chlorpromazine 25mg IM 15–20 minutes before removal. Set up Intravenous Glucose 5 per cent before beginning removal and just before give Methergin 0.2mg IM. Get blood for transfusion if possible.
2. Steady the uterus with your external hand throughout the procedure.
3. With aseptic precautions pass your hand into the uterine cavity through the vagina. With your fingers gently separate the placenta all round its attachment. Remove it in one piece. Gently re-explore the uterine cavity making sure no large pieces remain.
4. Occasionally you may not be able to remove it intact and may have to detach it piece by piece.
5. If the placenta is badly adherent do not persist. Send patient to hospital if not bleeding.
6. If heavy bleeding treat as for P.P.H. (5.1.10.2)

6.1.3. Anaesthesia and Analgesia.

As far as possible avoid inhalation anaesthesia. Most of the obstetric procedures at a PHC can be performed under deep sedation and local infiltration anaesthesia or pudendal block.

A. Pudendal Block:

1. Use Lignocaine 1 per cent in normal Saline and a 15cm (6 inch) 22 gauge needle. Locate the ischial spine by a finger in the vagina.
2. Raise the finger and pass the needle (with attached 10ml syringe containing the anaesthetic) under it advancing the point just posterior and medial to the tip of the spine. Raise a small submucosal weal by injecting 1 ml of the anaesthetic. Advance the needle further to the sacrospinous ligament and infiltrate with 2–3 ml of the solution. Pierce the ligament and inject about 5ml of the solution into the surrounding tissues. Withdraw the needle and repeat the procedure on the opposite side. Inject about 3 ml of solution over the ischial tuberosity; withdraw the needle almost entirely and then slowly advance it towards the symphysis almost to the clitoris keeping it about 2 cm lateral to the labial fold and 1–2 cm beneath the skin. Inject 5 ml of the solution. Inject as you withdraw the needle slowly. Repeat on the other side. If properly done most vaginal obstetric operations can be performed under this block. Always test for Lignocaine sensitivity prior to its use. Be sure before you inject that you are not inside a vein by withdrawing the plunger of your syringe and noting that blood is not obtained.

B. Para Cervical Block:

Mostly used for evacuation of a pregnant uterus. Choose points at the reflection of the vaginal mucosa on the cervix at 3 o'clock and 9 o'clock positions. Introduce the needle at these points for a depth of about 1.5 cm into the broad ligament. Inject about 10ml of Lignocaine 1 per cent at each point. Be sure that you are not in a vein by withdrawing the plunger before injecting the anaesthetic and note that blood is not drawn. Wait for a few minutes before you start the operation.

6.1.4. The Use of Oxytocics.

Must be used with care. Oxytocin and Methergin (methylergotomine) are the common Oxytocics employed in obstetrics. Of these Oxytocin can be used in the management of labour prior to and after expulsion of placenta. Methergin should never be used before delivery of the foetus except in Caesarean Section (6.1.2.8).

Oxytocin — uses

1. In inevitable abortion to help expulsion of the uterine contents and after completion of abortion. It can be given either as fractional doses — 5 units IM every half hour for 3–4 injections or 10–20 units in 500 ml of 5 per cent Glucose as an intravenous drip. Starting with 10–15 drops a minute the drip flow can be increased to 30–40 drops a minute according to the response. It assists evacuation of the uterus and control of bleeding.
2. In induction of labour and for accelerating labour. Before use for this purpose It is essential to rule out contracted pelvis, cephalo-pelvic disproportion

6.1.4

6.1.5

and malpresentations or any other obstruction to vaginal delivery. Avoid its use in grand multigravidae (Para 5 and over) prior to delivery.

For induction the Oxytocin is best given as an intravenous drip — $2\frac{1}{2}$ units in 500ml of 5 per cent Glucose. The rate of the drip should be adjusted so that normal uterine action is brought about. Start with 5–10 drops a minute and increase the rate gradually until optimum contractions are obtained; one contraction every few minutes lasting about 30–45 seconds. Do not exceed 40–50 drops a minute. In the absence of foetal distress the drip can be repeated till the desired results are obtained but do not give more than 10 units in twenty-four hours. During the drip count foetal heart frequently. If there is foetal distress — persistent rapid rate over 160 or below 120 per minute — stop the drip. Restart after an hour — this time watch the foetal heart more frequently. If there is no foetal distress continue with the drip. Should distress again develop stop the drip. Do not repeat.

When labour is prolonged due to weak uterine action the Oxytocin drip administered as stated previously is a useful method to provoke normal uterine action. But make sure that there is no malpresentation (occipito-posterior position is not a contra-indication) or cephalo-pelvic disproportion or contracted pelvis or any other obstruction to the vaginal delivery. Avoid its use in grand multigravidae. Oxytocin drip acts best after rupture of membranes and artificial rupture of membranes will help to accelerate labour if done a few hours after starting the drip. Never use the Oxytocin drip in labour unless you are prepared to watch the patient constantly till it is over.

Oxytocin 5 units IM followed by 20 units in 500ml of 5 per cent Glucose as an IV drip is useful to control Post Partum Haemorrhage.

3. Methergin (methylergotamine).

Main use is in the control of PPH. 0.2–0.4mg administered IM or IV after expulsion of the placenta helps to control atonic PPH. Also if 0.2mg is given IM as the shoulder of the baby is being delivered it helps early separation of the placenta and diminishes blood loss. Many obstetricians give it in the management of the third stage of labour. There is some risk of causing hour glass contraction of the uterus and retention of placenta. Therefore at the PHC it should not be used as a routine in the management of the third stage. It should be administered (0.2mg IM) before and after evacuation of a pregnant uterus and intravenously at the time of delivery by Caesarean Section. It should never be administered in the first or second stages of labour.

6.1.5. The Use of Evacuant Enema in mothers and children. (rarely given to children).

1. Preparation: make the following solutions for enema:

Prepare a jelly from one cake of soap, sweet oil 30ml, turpentine 4ml. Add one teaspoon of jelly to 120ml of water.

2. Ensure that the following are kept for giving enema:

- a. Waterproof sheet.
- b. Large funnel.

6.1.5
6.1.6
6.1.6.1
6.1.6.2

- c. Rubber tube about 45cm long.
 - d. Rectal tube with connecting catheter of size No.9.
 - e. Can containing measured amount of required solution to be administered.
 - f. Bed-pan.
3. Tell the patient why the enema needs to be given and explain the procedure briefly.
 4. Make the patient lie on waterproof in left lateral position and flex right knee and thigh on the chest.
 5. Gently introduce a well lubricated catheter through the anus into the rectum for about 10cm (4 inches) in adults, 7.5cm (3 inches) for 6–12 years of age and not more than 5cm (2 inches) in children below 6 years.
 6. Fill the can with the enema solution at 37°–38°C temperature. The tube of this can is connected to the catheter.
 7. Hold the can at the height of 30–45cm above buttocks.
 8. Allow the measured amount of enema fluid to run into the rectum: allow 30ml a year of age until 4–5 years, then 35ml a year until 45 years, and 20ml a year in older people. Do not allow air to enter tube.
 9. Stop the procedure if the patient complains of nausea or fainting.
 10. Remove the catheter gently.
 11. Make the patient sit on bed-pan or pass the stool in lying position.
 12. Measure the amount of fluid expelled and look at the result of enema.

6.1.6. Techniques of Family Planning.

6.1.6.1. Post-Partum Sterilisation.

Optimum time within 48–72 hours of delivery. Do it only in uncomplicated pregnancies and deliveries when the child has been born in the PHC.

1. Anaesthesia: Local infiltration anaesthesia is best.
2. Make a small 5cm midline incision near the fundus of the uterus.
3. If you have been taught a particular technique then follow it. If not use this procedure. Put two fingers into the peritoneal cavity, hook out the fallopian tube after seeing the fimbrial ends. Pick up a loop of the tube with forceps. Tie the base of the loop with a plain catgut suture passed through the mesosalpinx avoiding the blood vessels. Cut off the knuckle of the tube so isolated. Do the same on the other side (Fig.18).
4. N.B. You **must** identify the tube by seeing the fimbrial ends. Otherwise the round ligaments which are anterior may be mistaken for the fallopian tube.

6.1.6.2. Suction Evacuation of a Pregnant Uterus.

Termination of pregnancy at a PHC is permitted only up to ten weeks.

1. Anaesthesia: General anaesthesia is not usual. In apprehensive patients give a good sedative — Pethidine 100mg with Chlorpromazine 25mg or Phenobarbitone 60mg orally half an hour before the procedure. Combined with a para-cervical block, the operation will be painless.

Figure 18

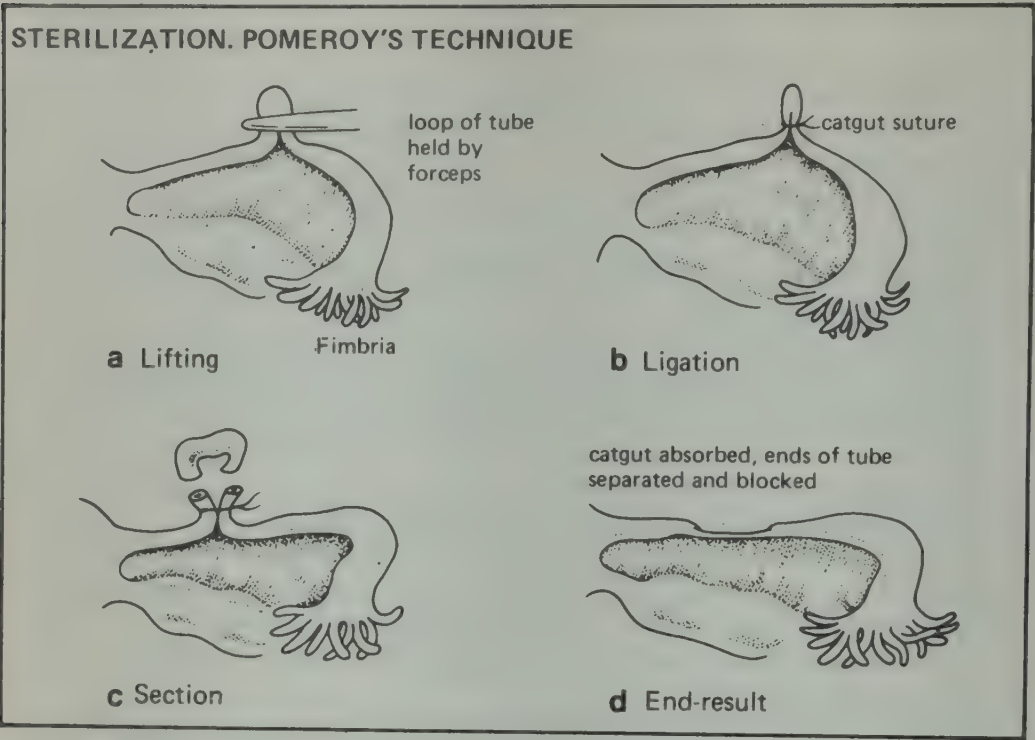
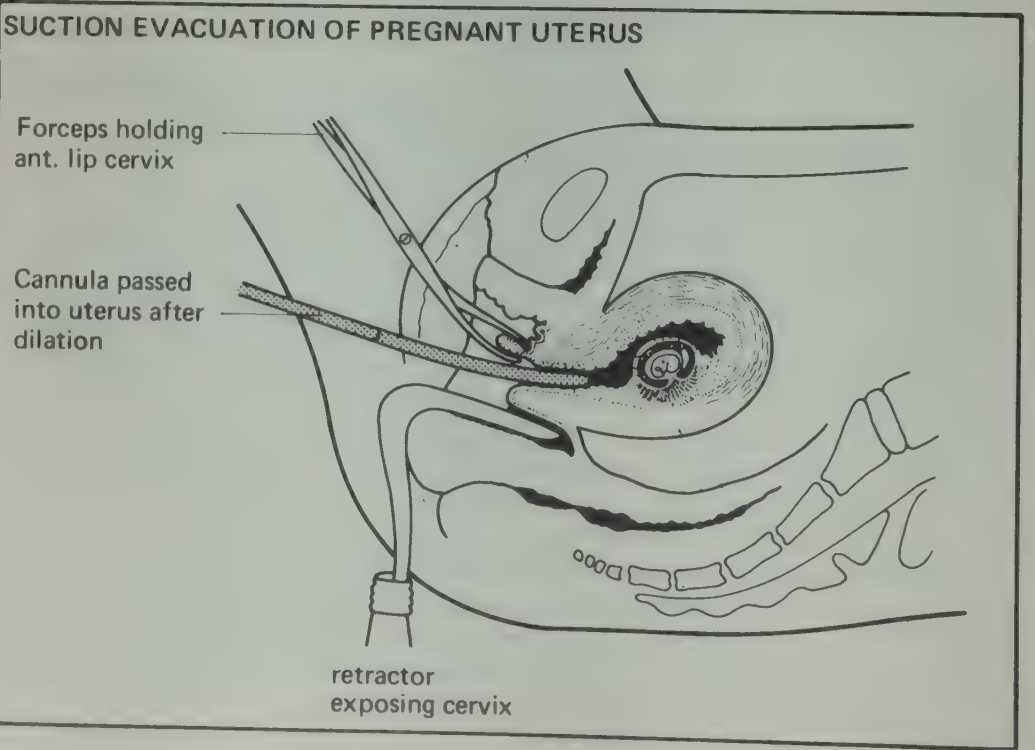


Figure 19



2. If a vacuum unit is available check it is working satisfactorily (6.1.2.5).
 3. Make a vaginal examination to determine the exact size and position of the uterus. Expose cervix with a speculum and hold up the anterior lip with single toothed forceps (Fig.19).
 4. Pass a sound gently into the uterine cavity.
 5. The cervix should be dilated to a size to accommodate the cannula to be used for evacuation — e.g. generally 4–8mm dilators are recommended for cases between 4–7 weeks gestation, 9–11mm dilators for 8–10 weeks and 11–14mm dilators for gestations more than 10–12 weeks.
 6. Dilation must be done slowly, gently and steadily.
 7. Insert the cannula you have chosen (depending on the duration of pregnancy) into the uterine cavity.
 8. After the cannula is inserted, switch on the vacuum (pressure used varies from 0.6–0.8 kg cm²).
 9. When suction is applied, the cannula is moved backwards rotating 180° within the uterine cavity. The negative pressure dislodges the products of conception. Continue aspiration until the uterine wall can be felt all around and the cavity shown to be empty. After completion of aspiration, gently curette the cavity with a blunt curette (check curettage).
 10. If a vacuum unit is not available, after dilation to the required size pass a blunt curette into the uterine cavity and gently curette. Use sponge-holding forceps to remove the detached products of conception. Be careful not to perforate the uterus.
- If perforation is suspected, keep patient under observation and give antibiotics. Watch pulse rate and blood pressure. Keep a donor ready. If there are no signs of internal haemorrhage, continue treatment on conservative lines. If haemorrhage is evident, and indicated by rising pulse rate and falling blood pressure, laparotomy and suture of the tear is required.

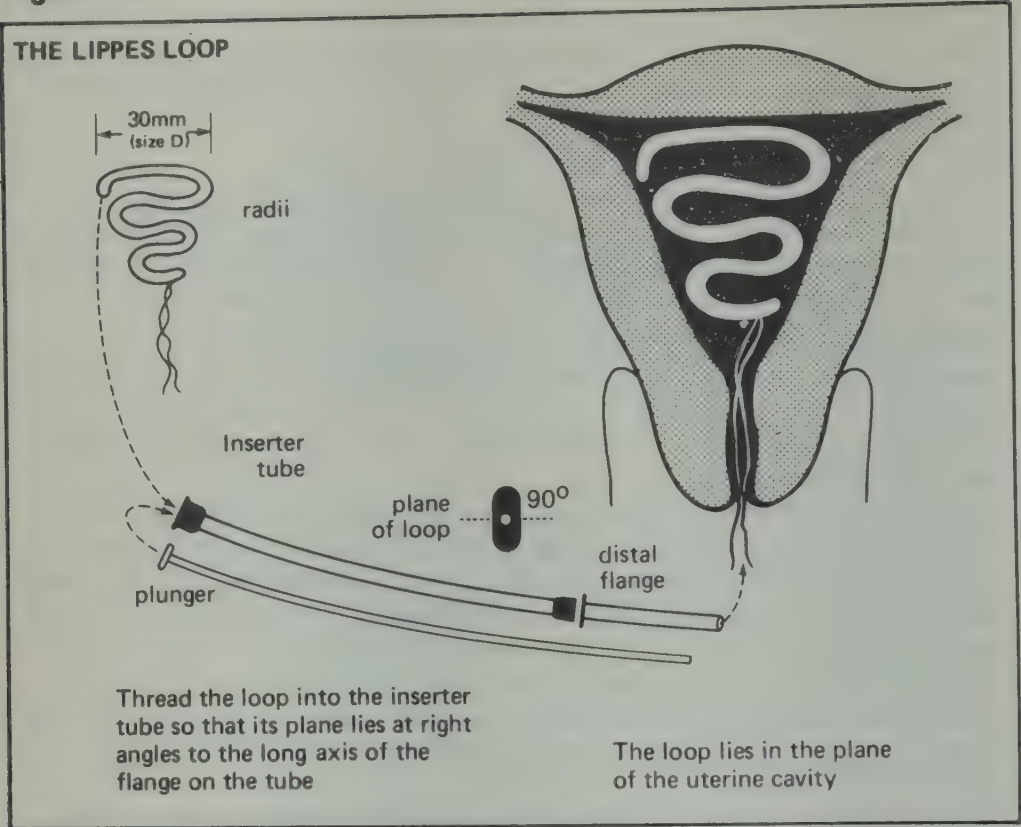
6.1.6.3. Insertion of Intrauterine Devices (IUD).

Lippe's Loop (Fig.20).

Available in four sizes — 21mm, 25mm, 27.5mm and 30mm.

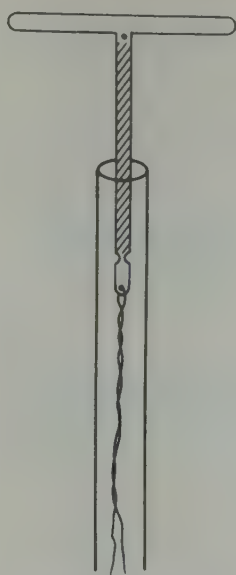
1. Make a thorough gynaecological examination to rule out any pelvic infection, and other disorders (5.1.15).
2. The loops should be sterilised by keeping them in a solution 1 in 1000 Acriflavine in water, in Savlon or similar antiseptic for twenty-four hours. The introducer and plunger provided along with it are sterilised simultaneously.
3. Put patient in lithotomy position. Make sure of the position of the uterus again by vaginal examination.
4. Feed the loop into the introducer and keep it ready for insertion.
5. Insert a speculum into the vagina.
6. Catch the anterior lip of the cervix with single toothed tenaculum forceps, as in Fig.19.

Figure 20.

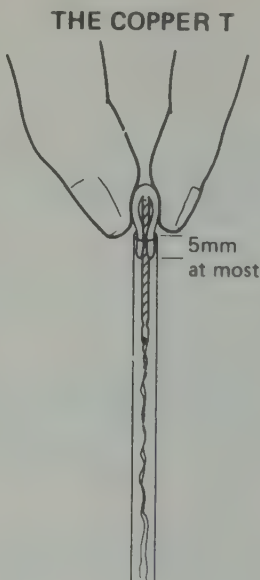


7. With full aseptic precautions guide the loaded introducer into the cervical canal till the guard on the introducer is flush with the external Os.
8. With the plunger push the loop from the introducer into the uterine cavity. The polyethylene filament attached to the loop hangs out of the cervix into the vagina.
9. In parous women it is seldom necessary to dilate the cervix before insertion. No anaesthesia or sedation is necessary. Properly done there is little or no pain. The patient should be taught to feel for the filament in the vagina which would indicate that the loop is in place

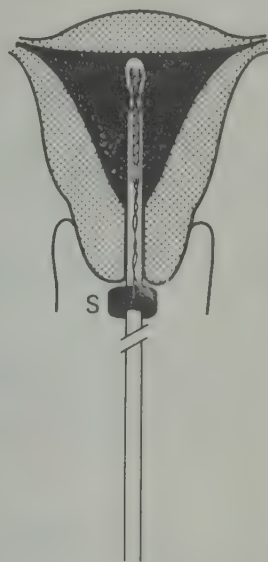
Figure 21



Load outer sheath



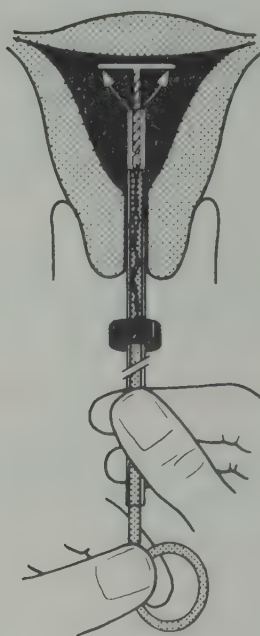
Bend and insert
'T' flanges



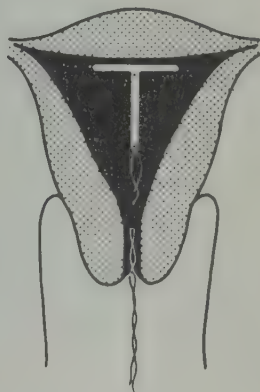
Introduce outer sheath
containing device to
spacer S



Insert plunger to base
of device



Withdraw outer sheath
2.5cm whilst maintaining
position of plunger. This
allows flanges to open.



Remove outer sheath
and plunger together
allowing device to
remain.

Copper T (TCu) contraceptive.

Copper has a local action whilst in position, no action remains after removal. The TCu is effective for three years without local side effects. Contra-indications are same as for Lippe's loop.

Inserters and TCus are provided separately: if not provided in a sterile pack they must be covered with Zepherin (Benzalkonium chloride 1:750) aqueous solution for at least 12 hours before use.

The best time for insertion is in the last two days of a menstrual period.

Loading the applicator (Fig.21).

1. Wash hands and put on sterile gloves.
2. From the uterine end of the applicator insert the vertical stem of the TCu into the lumen and fold back the transverse flaps as indicated (Fig.21).
3. Put the plunger into the other end of the applicator bringing the tip up to the end of the shaft of the TCu.

To insert

1. The woman is placed in the lithotomy position.
2. Examine the vagina and cervix.
3. Retract the posterior vaginal wall with Sim's speculum.
4. Grasp anterior lip of cervix with tenaculum (Fig.19).
5. Clean the cervix and vagina with swab soaked in Savlon or Dettol.
6. Introduce a uterine sound to determine the length of the canal and uterine cavity, adjust the stop on the applicator at the correct length (Fig.21).
7. Dilate the canal if necessary up to 4mm (3-4 H).
8. Introduce loaded applicator the correct length.
9. Withdraw the applicator about 12mm ($\frac{1}{2}$ inch) without allowing the plunger to move: this releases the transverse arms which move laterally.
10. The plunger is then removed completely.

Then the applicator is removed leaving the TCu in the uterine cavity and the nylon threads passing through the cervical canal into the vagina. The threads emerging through the labia indicate the device is in position.

Tell the woman

1. There may be some spotting or slight bleeding in the first few days. It is rare after the first cycle.
2. If device is expelled she should come promptly to the PHC.
3. She should check that the device is still present at the end of each period.
4. Unless expelled it should last 3 years.

6.1.6.4. Vasectomy.

1. Before operation clean and carefully shave the genitalia.
2. Identify the vas by palpation and localise it with the fingers.
3. Inject into the scrotal skin at this site local anaesthetic Lignocaine 1 per cent about 1-2ml.
4. Fix the vas with a needle or grasping forceps.

5. Make a short skin incision over the fixed vas. Deliver a small portion of the vas through the skin incision.
6. Separate the vas from its sheath and blood vessels.
7. Tie vas in two places and remove 1cm from between the ties.
8. Close the skin incision with linen or nylon sutures: Remove within a week. If subcuticular stitches are used, they will not need removal but chances of infection are greater.

Several technical modifications are in vogue. You should choose the one in which you have been trained. A scrotal support should be advised.

6.1.6.5. Cauterization of Cervix.

At PHC if an electrocautery machine is not available, cervix can be cauterized by the following method:

1. Patient is put in lithotomy position.
2. Retract the posterior vaginal wall using Sim's speculum.
3. Anterior lip of the cervix is caught with volsella forceps (Fig.19).
4. A metal probe is heated over a spirit lamp until the tip becomes red hot.
5. Touch the cervix with the red hot tip of the metal probe radially starting from within the cervical canal to the outer part of the cervix. The number of such radial applications required depends upon the size of the cervix and the ulcerated area over it.
6. Dilate the cervical canal if necessary up to 3—4mm (3—4 H).
7. Clean the cervix and vagina with swab on holder using antiseptic solution — Dettol or Savlon.

Section 6.2 TECHNIQUES OF CHILD CARE

6.2.1. Introduction.

Principles of child care given in Section 5.2 are as applicable to techniques as to knowledge.

1. You must make all care as simple as possible.
2. Remember that parents care for children. You must always gain their trust and confidence so they support, accept and agree to your technical procedures.
3. Education of parents must reinforce all your technical expertise. Education is the most important influence you and the health team can exert.

Techniques within each group relate to each other. This section relates closely to Section 5.2.

6.2.2. Associated with Nutritional Status,

6.2.2.1. Weighing a Child.

1. Ensure that the weighing scale is accurate and the zero error corrected. In some small scales, the correcting screw is put in the frame of the scale and is covered by a plate. For weighing in villages or homes, small weighing scale with a dial gives fairly accurate readings. With a hook the scale can be hung from any beam in a room or a branch of a tree. Use sling made from cloth/nylon to hold a child (Fig.22).
2. Fix the weight scale at eye level for correct reading.
3. Weigh the child without shoes or sandals and permit only minimal clothing like pants.
4. If child is crying look at the needle and take the reading when it becomes steady between the attacks of crying.
5. Do not ask health workers to weigh the mother with the infant and then the mother alone. This causes errors.
6. Some parents in tribal or other communities may not like the children weighed; be patient, do not offend.

6.2.2.2. Measuring height.

1. Make the child stand, without shoes or sandals, against a wall with heels, buttocks and occiput touching the wall.
2. Chin should be kept straight and there should be a right angle between the chin and neck.
3. Hold a slab of cardboard against the head and make a line on the wall or see the reading of the measure tape or scale. The measurement from the floor to the mark is the height.
4. When infants are not able to stand or co-operate for standing, take length instead of height. The heels should touch a board and the legs be straight. With help keep a right angle between chin and neck and slide another board

6.2.7.2

6.2.7.3

6.2.7.4

6.2.7.5

to the head. The measurement between the two wooden surfaces is the length. A simple 'infantometer' can be made by a local carpenter.

6.2.2.3. Individual Nutritional Status.

1. To assess nutritional status you must first know the child's age; if necessary by reference to your local events calendar.
2. Then weigh him and calculate the percentage weight for age against the reference standard weight (5.2.2). If weight is 80 per cent or less of the standard the child is considered malnourished. You can grade his malnutrition as shown (5.2.3. and Table 4).
3. You can assess nutritional status directly from a weight chart if lines for various grades are printed on it. Otherwise, a plastic stencil carrying the lines for each grade can be used for the same purpose. A weight chart with only two lines can be slipped into the plastic stencil and the grade of malnutrition read immediately.
4. When age is not known, measure height and then by reference to the scale read the appropriate age. Then compare actual weight with weight for age on standard scale and calculate the percentage. This gives an indication of grade of malnutrition if any. It assumes that height is less affected by malnutrition than weight but is not accurate in chronic malnutrition.
5. For a child in age group 1—5 years measure the arm circumference and refer to the table (Fig.23). Coloured arm-strips, Shikar Strip, will show you directly the status of nutrition (Quac test 6.2.2.4) (Fig.23).

6.2.2.4. Modified Quac-stick assessment.

A strip of paper (Fig.23) gives the height and figures of arm circumference in cm. and for each height, the arm measurement for 4 grades of nutritional status. Drawn on thick paper or cloth the scale can be used fastened against a wall or a stick. Measure the maximum left arm circumference with the arm hanging by the side of trunk. The child then stands in front of this Quac-stick paper and height is measured. The measurement of the arm is then compared with those for his height and his nutritional status estimated.

6.2.2.5. Technique of Infant Feeding.

1. Almost all mothers breast feed. They learn by watching other mothers and by custom (5.2.4).
- a. No contra-indications to breast feeding. Mastitis or breast abscess (5.1.11.3 and 5.2.4).
- b. Problems of failure of lactation arise in primigravidae or young educated mothers, often from economically well-to-do families. During pregnancy prepare the woman emotionally for breast feeding.
- c. Even if the mother has open tuberculosis or infective leprosy, the infant should continue breast feeding. If not already infected the baby must be protected by Isoniazid Prophylaxis (20mg/kg) for three months whilst mother is under treatment. When her sputum becomes negative give BCG to

Figure 22

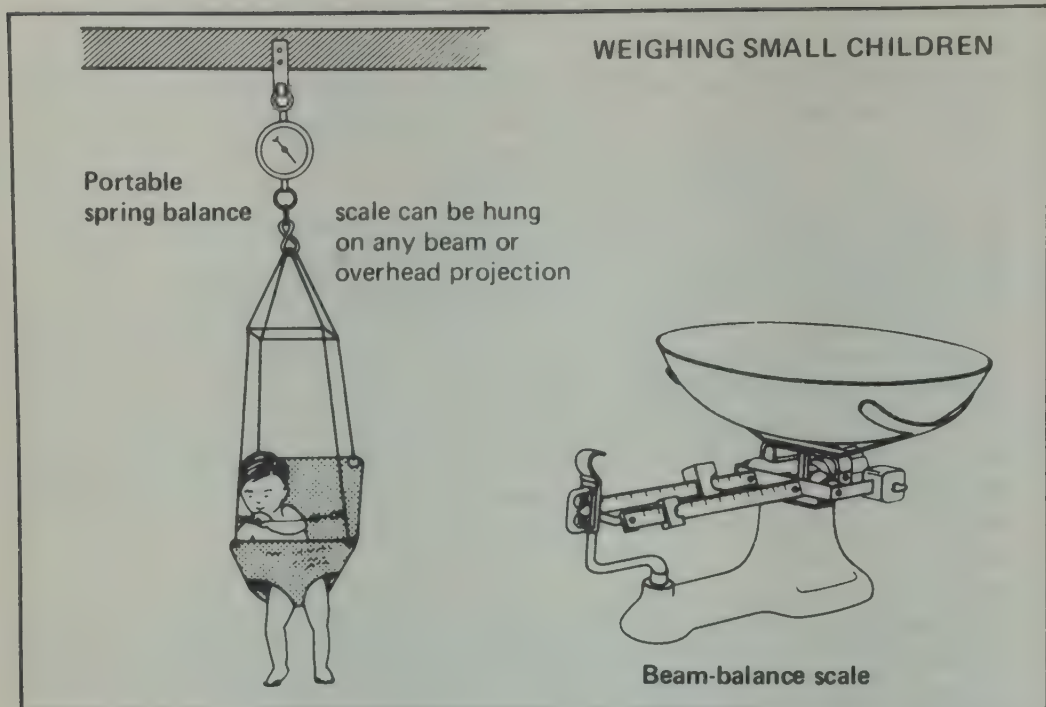
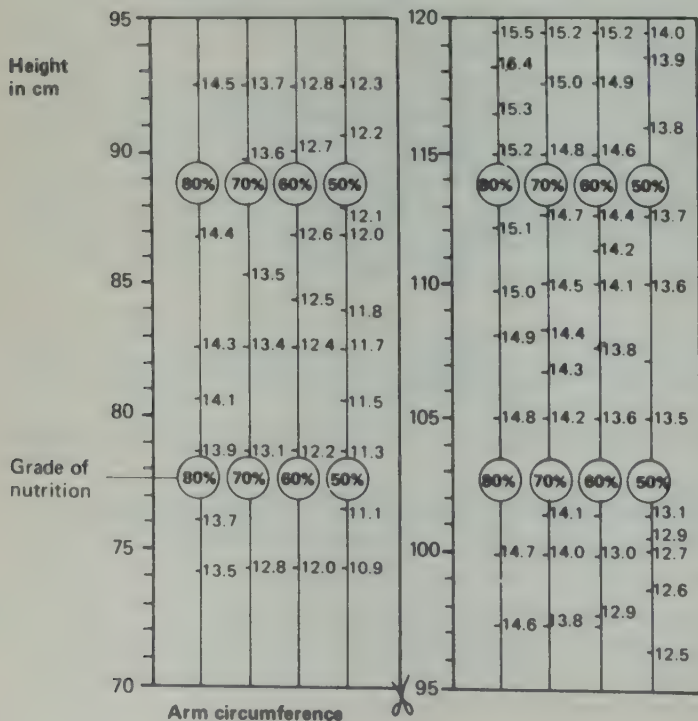


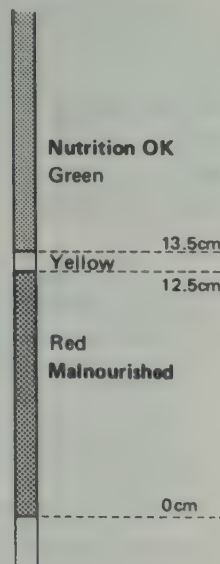
Figure 23

ESTIMATION OF NUTRITION

QUAC-STICK



SHAKIR STRIP



the child. If mother is an infective case of leprosy under treatment, sulphones excreted in milk will protect the baby.

- d. In very adverse situations if the infant must be put on feeds other than breast milk, the milk should be served in a cup or vati and given by spoon and not in a bottle. The process of cleansing of bottle and teat is complicated for a mother to understand whereas a cup and spoon is washed much more easily: clean running water used if possible.
- e. If a bottle is used it **must be cleaned each morning with a brush and boiled completely immersed in water**. Similarly teats must be cleaned with a pinch of salt, washed and boiled for a minute or two. Wash hands before taking bottle out of the water: keep the boiled water. After each feed during the day, clean the bottle with running water and then keep it in the boiled water prepared in the morning. Hands must be washed every time before handling the bottle and the teat. This technique is not ideal but a compromise when there is shortage of water, time and money for fuel.
- f. Teats can cause problems from shape, size, size of hole, type of rubber used. If the hole is small the child has to struggle hard to get milk and becoming tired sleeps only to waken after a short time hungry and crying. To test the size of hole invert a full bottle, the milk will come out drop-by-drop if the hole is the proper size. If the hole is small, enlarge it with a hot needle. Shape of a teat should be like a nipple.
- g. Mothers must be told to take the bottle out of the baby's mouth frequently while he is feeding. This maintains the air pressure inside the bottle.
- h. Tell parents to stop bottle feeding as soon as possible and to teach the child to drink from a cup.
2. If mother has introduced supplementary feeding, ensure that the milk formula is not given too diluted. To two months give the infant a milk formula of two parts of milk and one part of water (2:1), and from two months give undiluted milk. Add one teaspoonful sugar to every 3oz of milk formula. Be guided by the infant's growth.
3. If a mother is using a humanised milk powder make sure the formula is prepared properly. One measure of milk powder to one oz of water. Mothers use a cupful or a glassful of water for mixing milk. One cup is 4oz and a glass 8oz. Hence, take 4 or 8 measures of milk powder. To that powder first add one or one and half oz water and make a paste. Then add the remainder of the cool boiled water.

6.2.2.6. Preparation of Complementary Feeds from third or fourth month.

1. Do not advise the mother to stop breast feeding before eighteen to twenty-four months.
2. Do not talk about fruit juices to a mother who cannot afford them and has nowhere to store them.
3. Concentrate on local foods prepared by cooking.
4. Ask the mother to give the breast fed infant semi-solids made from cereals and pulses from three or four months of age. Soup like 'dal', 'pez', 'kanji' or gruel without any condiments (about 6—8 teaspoons). Give as a gruel

cereals like rice, jowar (sergham), wheat or ragi cooked with or without milk, sugar or jaggery with the flour of pulses. Mashed potato and vegetables or half ripe banana with milk or mashed papaya are also good. These items should be a part of whatever is cooked in the morning for the family and be given to the infant in the late morning or at noon.

5. If the mother's milk is not enough and child's weight is lagging or stationary and the family can afford the cost, give undiluted cow's or buffalo's milk from the fourth month. Add one teaspoon of sugar to each 100ml of milk. Give food by spoon or feeding cup with spout (Table 5).

6.2.2.7. Weaning Techniques and diets.

Weaning begins when an infant is offered foods other than milk.

In some communities weaning is deferred until the child is old enough to feed himself.

Prolongation of breast feeding without giving other foods is one of the main reasons for the failure of growth in children from 6–18 months.

Make a special effort to ensure that every child is offered sufficient quantity of food while breast feeding continues. This is necessary from the fourth month. The first weaning food is cereal gruel made with milk and sweetened with sugar, jaggery or gur. From the fourth month, give the infant cereal gruel once a day. A week or so later, the gruel is given twice a day, while breast feeding continues.

Prepare cereal gruels from rice, ragi or wheat flour as below.

Examples of foods and approximate quantities for children from the fifth month to two years.

Note quantities are given in grams and millilitres but you must be able to convert this into local measures and weighed amounts should be demonstrated in the 'Under Fives' clinic.

(1) Fifth and Sixth months

		Calorie Kcal	Protein g	
Cereal flour 15g	Rice or	55	1.1	All twice a day = 370 Kcal and 5–6g protein daily
	Wheat	55	1.7	
Milk 50ml		35	1.5	
Sugar 10g		40	—	
Oil 5g		45	—	

+ Breast milk at feeds in day

(soft boiled egg 2–3 times a week if finances permit)

Check weight growth; if not satisfactory increase gruel feed above or if possible add cow or buffalo milk to ensure weight gain.

If necessary add a teaspoon of oil or ghee to the gruel to increase the calorie value. Commercially prepared weaning foods are expensive.

After seven months of age, gradually introduce foods eaten by the family into the child's diet. Give also small amount of fruit (plantain, orange, tomato, apple). By the eighth month, well cooked dal and rice mashed together with cooked green leafy vegetables and oil or ghee can be taken at two meals.

(2) By nine months the following amounts are necessary

	Calories Kcal	Protein g	
Morning and mid-day feeds:			
Cereal flour 20g Rice or	80	1.5	
Wheat	80	2.4	2 feeds
Dal 7.5g	28	1.5	= 432 Kcal
Greens 5g	—	—	9 to 11g
Oil 7.5g	68	—	protein
Milk 60ml	40	1.5	
Tea:			
Fruit (1) (Table 2)	50		

+ Breast milk at feeds in day

(Egg, fish, minced meat or liver, as finances permit.)

Check weight as previously and adjust amount of food as necessary.

Increase the quantity of food given between nine and twelve months to approximately the following:

By twelve months

	Calories Kcal	Protein g	
Two feeds:			
Cereal flour 30g Rice or	120	2.2	
Wheat	120	3.4	2 feeds
Dal 10g	35	2.0	= 590 Kcal
Greens 20g	10	—	12–14g
Oil 10g	90	—	protein
Milk 60ml	40	1.5	
Tea:			
Fruit (1) (Table 2)	50	—	
Snack (gram flour) with jaggery	50	3.0	100 cals

+ Breast milk during day

(Egg, fish, minced meat or liver as finances permit.)

Check weight as previously and adjust amount of food as necessary.

(3) During second year breast feeding will continue but baby will be given more and more of the family food.

	Calories Kcal	Protein g	
Breakfast:			
Wheat or rice cereal 25g.	100	3.0–2.5	
Gruel of 50g ragi flour	165	3.5	416 cals
50ml milk	35	1.5	7.5–8g
30g jaggery	116	—	protein

6.2.2.7

6.2.2.8

	Calories Kcal	Protein g	
Lunch/Dinner:			
Wheat or rice cereal 100g	380	12-8	540 cals
Dal 15g	50-60	3.5	12-16g
Vegetables/greens	20	—	protein
Oil 10g	90	—	
Tea:			
Snack 30g (based on dried			
peas Bengal gram or groundnuts)	100	8.0	
Fruits (1) (Table 2)	50	—	

Check growth by weighing.

6.2.2.8. Supplementary feeding programmes

The following supplementary feeding services operate in certain Community Blocks.

1. Supplementary Nutrition Programmes (SNP). Programmes organised in 1970/1971 by the State Social Welfare Departments. Children under six years of age, pregnant women and nursing mothers are provided with food supplements. Operates in urban slums, tribal blocks and chronic scarcity areas. Children receive nutrition supplements prepared from CSM (Corn, Soya and Milk) in oil for 250 days a year. These provide 200 calories and 6g protein to children 0-1 year old and 300 calories and 12g of protein to children of 1-6 years. Supplements and preparations vary in different regions of the country. In cities children are provided with 100g of bun (280 calories and 6.8g protein). Some States have organised 'Balwadis' where children in 3-6 years age group are given non-formal education and nutrition supplements. In villages, supplements are distributed by the local community leaders with the assistance of voluntary helpers.

Pregnant women during their last six weeks and lactating mothers for the first four weeks after delivery are given 150g of supplement providing 600 calories and 20-25g of protein. In city slums, they get 200g of bun. In Blocks selected for SNP programmes schoolchildren are given supplements as a mid-day meal, equivalent to one third their daily caloric need.

2. Applied Nutrition Programme (ANP). This programme is implemented in certain Blocks or Districts by the Agriculture Ministry or Community Development/Rural Development Department. The local community is encouraged to participate actively in the programmes developing community kitchens and school gardens, poultry, fishing or at times dairy produce. International agencies such as UNICEF provide the necessary equipment for developing the various production programmes. From the produce the required amount of materials like egg, fish, milk, pulses or groundnuts are given to the beneficiaries and the remaining bulk is sold. Supplements are provided to medically identified children under six years and pregnant and lactating mothers.

3. Mid-day meal Programme. In the 'At risk' areas of the community, with a high incidence of malnutrition, mid-day meal programmes for schoolchildren are implemented either as a part of the supplementary nutrition or applied nutrition programmes. Schoolchildren are encouraged to develop school gardens and to cultivate foods of high nutritive value. Mid-day meals are prepared by helpers from the community or school teachers using CSM and oil or local foods such as groundnuts, grams, pulses and cereals. Children receive one third of their caloric needs. They are encouraged to develop kitchen gardens at home.
4. Integrated Child Development Services (ICDS). Services began in 1975. In selected Community Blocks children under six years of age receive medical care and are weighed every month. Those within grades II, III and IV malnutrition receive nutrition supplements. All children in the community are covered under this scheme. Non-formal education is given to the children through Anganwadi and functional literacy classes are conducted for adults.

The objective of these nutrition programmes is to educate people in good practices for the production, storage, preservation and use of protective foods and to counteract insufficient food intake. Beneficiaries should be screened through weight charts or specially prepared arm tapes, Shakir Strips (6.2.2.4). The team members must make sure these foods are eaten as supplements and not as substitutes.

The programmes stimulate self-help. Women's clubs (Mahila Mandals), Youth Clubs (Yuvak Mandals) and other local organisations are involved. The recipes used vary from region to region depending on the availability of foods locally and the food habits in the area.

Many voluntary agencies such as the Indian Council for Child Welfare, Harijan Sewak Sangh, Bharatiya Adamjati Sewa Sangh and Central Social Welfare Board contribute to these services and you as physician should contact any of these agencies in your area.

6.2.3
6.2.3.1
6.2.3.2

6.2.3. Techniques of Physical or Laboratory examination

6.2.3.1. The Eyes.

1. Observe carefully when you are looking at a child's eyes. Do not attempt to touch the lids of a small child. He will simply close his eyes. In older child examine the eyes as in adults.
2. Look at the eyelids and lashes for crusts or ulceration. Note any discharge.
3. Look for congestion and redness of conjunctivae. For pallor, observe the lower palpebral conjunctivae and for jaundice look at the sclera.
On the conjunctivae look for secretions, foreign body, smoothness or dryness, thickened area or wrinkles, foamy spot or follicles; wrinkles or thickened lustreless conjunctivae are best seen when eyes move laterally. Small white spots of phlyctenular conjunctivitis are seen at the corneo-scleral junction (limbus).
4. Look carefully at the cornea. Observe the lustre, vascularisation, or any scar, opacity or foreign body.
5. Making a noise, pass a small toy from side to side to detect any weakness of eye muscles.
6. Press on the nasolacrimal duct for any regurgitation of pus or watery discharge.
7. If you suspect trachoma or foreign body evert the upper eyelids. Ask the patient to look at his feet, take the lashes and lower edge of the upper eyelid with your right thumb and index finger and pull the lid downwards and away from the globe, place your index finger of your left hand at the upper level of tarsal plate. The upper lid can then be turned painlessly so that you can examine the undersurface. A blinking movement restores the lid to its normal position.
8. With a torch examine the pupils, anterior chamber, lens and iris.
9. Examine fundus when necessary; use one drop of 10 per cent Phenylephrine Hydrochloride or other mydriatic agent. In young children it may be necessary to give a sedative if the fundi are to be seen.
10. The treatment of conjunctivitis requires frequent and effective irrigation and cleaning of the conjunctival sac. This hastens cure and prevents complications. Health workers must be able to do and to teach the technique. Use either clean boiled water or Saline from bottles of sterile normal saline at body temperature. Hold the lids apart asking the patient to look upwards and run the irrigation fluid freely but gently into the lower sac: the patient will close his eyes and help to wash the fluid over all the cornea and conjunctiva. Young child may need to be held wrapped in a cloth whilst the irrigation is done. It should be repeated three times a day if necessary and ointment or drops put in afterwards. Use an undine if possible.

6.2.3.2. Testing Vision.

1. Ask the mother what she feels about the child's sight. Her observations are of great importance.
2. Shine the light from a torch into the child's eyes from the side; the newborn will respond by blinking. If the light is bright the infant may move head to avoid light. By covering one eye at a time test both.

6.2.3.2

6.2.3.3

6.2.3.4

3. Test for vision by observing the child's response to a small toy, key or any such object. Test for each eye separately.
4. Test the pupillary responses to light. If the child loses interest or behaves badly when one eye is covered, and co-operates well when the other eye is covered, vision is probably reduced considerably in the eye causing the irritability.
5. In a child more than three years old test for visual acuity with help of fingers.
6. Test for colour blindness by asking the child to match the coloured articles with similar coloured material.

6.2.3.3. Examination of Ears.

1. Examine the external ear for deformity and infection.
2. Look at the external canal for any water, pus, discharge, wax or foreign body.
3. Pull the auricle downwards to see into the meatus.
4. Clean the external canal of wax or other discharge. The tympanic membrane can be seen with a speculum and head-light for reflected light or with an auriscope.
5. In children pull the auricle upwards, outwards and backwards to insert the ear speculum for otoscopic examination. Drum can be seen as a greyish membrane. In infants the lower part of the external ear must be pulled gently downwards because the bony meatus is not yet formed. Ear drum is more horizontal appearing almost as a continuation of the meatal roof. It is less transparent than the drum of the older child.

6.2.3.4. Testing Hearing.

1. Enquire from the mother what she has noticed about the child's hearing and what is worrying her.
2. Suspect hearing defect when there is suppurative otitis media or child is failing to talk.
3. Test for hearing with fine sounds like rubbing a paper near one ear. Do it from the back or side so that the child does not respond to your movement rather than to sound.
4. Try out a rattle, bell, clapping of hands or call his name and look for response. Newborn responds to such sounds by turning to the side of the sound. Do not bring these objects in front of his eyes. They should not create vibrations on the table or cot on which the child is lying.
5. In five year olds and in schoolchildren test hearing by (i) Whisper and (ii) Voice test.
(i) **Whisper test:**
Breathe out first and then whisper a number or name. The child should repeat while testing.

6.2.3.4

6.2.4

6.2.4.1

Be sure:

- (a) the child's head is turned to side so that he does not read lip movement.
- (b) test is done at arm's length.
- (c) the opposite ear is closed.

The child should hear the whispered voice at a distance of about one metre.

(ii) Voice test:

Ask the child to stand at a distance of five metres. Cover your mouth with a piece of paper and speak a word. Let him repeat the word. Repeat without covering the mouth, and let him repeat. This shows whether he lip-reads.

6.2.4. Examination of body fluids and secretions.

6.2.4.1. Urine.

For routine examination:

1. Collect a sample of urine from a mid stream specimen into a clean receiver. Both boys and girls should be washed before passing urine.
2. Protein in urine:
 - (a) Boil the upper portion of urine in a test tube, if it becomes turbid add few drops of 1 per cent Acetic Acid. If turbidity persists albumen is present.
 - (b) If Sulpho-Salicylic Acid is available, take 2ml urine in a test tube and add Sulpho-Salicylic Acid drop by drop. A white precipitate indicates that albumen is present.
3. Sugar: Carry out Benedict's test. Take 5ml of the Benedict's reagent in a test tube and boil for two minutes. Add 4–5 drops of urine. Look at the bottom of the test tube for yellowish green, yellow, orange or brick red precipitate indicating the presence of sugar. Green precipitates are not abnormal.
4. Bile pigments: Take 2ml conc. Nitric Acid and run 2ml of urine along the test tube. A display of colours at the junction of the fluids indicates bile pigments are present.
5. Bile salts: Take 2ml of urine and sprinkle flowers of Sulphur on the surface. The flowers settle to the bottom in the presence of bile salts.
6. Ketone bodies: Do Rothera's test. Take 10ml of urine and saturate with Ammonium Sulphate Crystals. Add three drops of Sodium Nitro-Prusside and 3ml of concentrated Ammonium Hydroxide. In presence of acetones there will be a permanganate ring at the junction of the fluids.
7. Microscopic study: Centrifuge urine for five minutes with hand operated centrifuge. Take one drop of deposit and place it on the centre of a clean slide. Cover with glass slip and mount on the low and high power microscope (Fig.24).

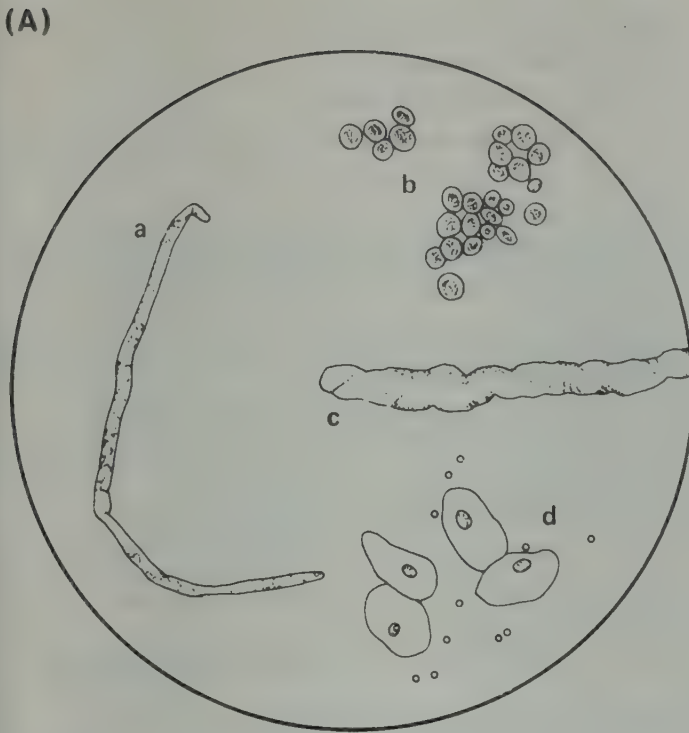
RBC may be swollen, shrunken or crennated. Presence of 1 RBC in a high power field is abnormal.

Pus cells are round, sometimes with crennated margins, lobed nucleus and have a refractile granular appearance. Presence of more than 5 pus cells in high power field is abnormal.

Epithelial cell is a hexagonal cell with a nucleus.

Figure 24

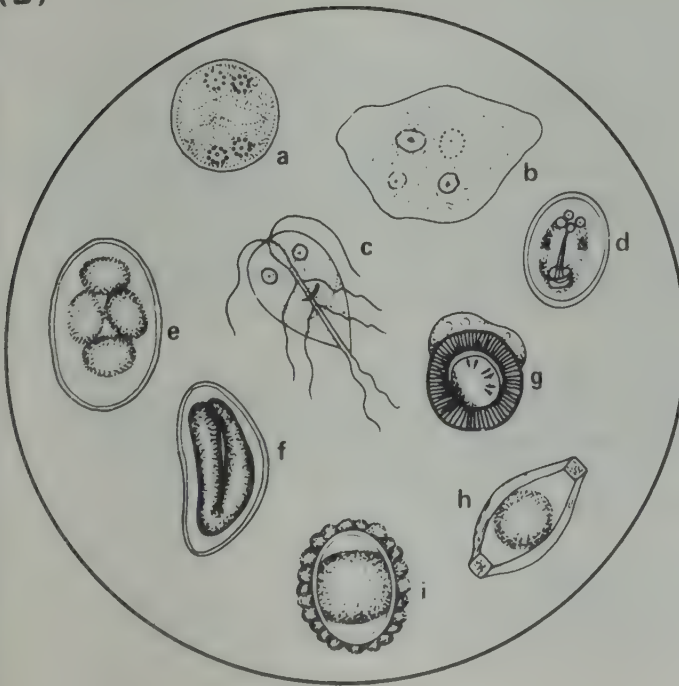
URINARY DEPOSITS



- a Granular cast
- b Pus cell
- c Hyaline cast
- d Red cells and epithelial cells

(B)

OVA IN FAECES



- a *Entamoeba histolytica* (mature form)
- b *Entamoeba histolytica* (active form)
- c *Giardia lamblia* (vegetative form)
- d *Giardia intestinalis* (mature cyst)
- e Hookworm
- f Threadworm
- g Tapeworms
- h Whipworm
- i Roundworm

6.2.4.1
6.2.4.2
6.2.4.3

Granular cast is an elongated cast with granules.

Epithelial casts are elongated cellular casts.

Hyaline casts are pale, transparent and homogenous.

Blood casts are collections of RBC from the lumen of a renal tubule.

6.2.4.2. Faeces.

1. Take a small portion of faeces, including a part of any pus or mucus present. Put a fragment on two glass slides; onto the first put a drop of normal Saline and the second a drop of Iodine.
2. Put a coverslip over the material on each slide and spread the sample between the slide and coverslip by applying light pressure.
3. Examine the Saline preparation under low and high power microscope for motile giardia, *Entamoeba histolytica*, bacilli, RBC's or pus cells (Fig.24).
4. Iodine preparation is useful for detecting ova of: (Fig.24 B).
Ascaris lumbricoides (i); hookworm (e); *enterobius vermicularis* (f);
trichuria trichuris (h); *H.Hana*, *Taenia Saginata* or *Solium* (g).
5. For the examination of faecal sugar in recurrent, resistant or chronic diarrhoea carry out the following procedure:

Squeeze a diaper which is wet with liquid stool or add water to solid faeces and squeeze it into a tube.

Examine the fluid for reducing sugar by adding 3–4 drops of Benedict's qualitative reagent to 5ml of the fluid. Heat the solution. Change in colour to greenish-yellow, yellow, orange or brick red indicates the presence of sugar.

6.2.4.3. Cerebrospinal fluid.

Collect the fluid in two sterile test tubes; the first few drops in the first and the remainder as required in the second. This gives the CSF a chance to clear any blood from the insertion of the needle. Hold the second to the light and notice if the fluid is crystal clear, slightly or very turbid: Turbidity begins when the cell count per cu mm reaches about 100. You will want to (1) count cells (2) measure protein (3) examine a film for organisms.

1. Count cells, using Neubauer chamber, number of cells in a large square (average 4 counts if only few present) and multiply by ten (add 0) gives number per cu mm (Fig.25).
2. Add a few drops of CSF to 2–3ml of Pandys reagent.
If CSF protein is increased above 35mg per cent it is abnormally raised; cloudiness begins at that level and increases with increasing amount of protein.
3. Place a drop on a clean slide and dry by warming.
Stains:
(1) Methylene Blue (or ink) 3–6 minutes wash and dry:
Quick method for organisms especially Gram negative intracellular diplococci, meningococci, etc.

- (2) Grams stain, staphylococci, pneumococci, etc.
 - (a) Flood the slide with Gram's stain and allow it to remain for ten seconds.
 - (b) Pour off the excess stain and wash away remaining material with Iodine solution.
 - (c) Flood the slide the Iodine solution and allow it to stand for ten seconds.
 - (d) Rinse with running water.
 - (e) Decolourise with Alcohol or Acetone till it becomes pale blue.
 - (f) Counter stain with Safranin for ten seconds.
 - (g) Wash under running water.
- (3) Zeihl Neelson stain for Acid Fast (Tubercle) bacilli.
 - (a) Pour carbol fuchsin over the slide and warm for five minutes taking care that the stain does not boil.
 - (b) Decolourise the slide by dipping it in 20 per cent Sulphuric Acid.
 - (c) Counter stain with Methylene Blue for 3—6 minutes. Wash the slide under running water. Let it dry. Examine under the microscope using oil immersion lens.

6.2.4.4. Blood.

1. Collect blood by finger or heel puncture. Sometimes venepuncture is required.
 For Femoral Vein puncture: **Do not use this method except as last resort.**
 - (a) Place the infant on his back on a table. Abduct the hips.
 - (b) Palpate femoral artery and clean the area with spirit swab.
 - (c) Insert a needle (No.20) medial to the pulsations, below inguinal ligament, directing towards the artery. Gradually withdraw the needle and aspirate all the time. Withdraw 2ml blood and immediately transfer to an oxalate bulb. Shake the bulb.
 - (d) Compress the femoral vein for 3—4 minutes until all bleeding stops.
2. Haemoglobin estimation.
 Using Sahli's haemoglobinometer
 - (1) Fill the graduated tube with N/10 Hydrochloric Acid up to 2ml mark.
 - (2) Suck blood up to mark 20 in pipette.
 - (3) Place the pipette in the tube and blow the blood into the Hydrochloric Acid.
 - (4) Suck up twice to get all the blood into the acid.
 - (5) Mix contents for one minute with a glass rod.
 - (6) Put the tube in the stand and while mixing add distilled water drop by drop until the colour of liquid in the tube matches with that of the instrument.
 - (7) Take the reading at the concave margin of fluid.
3. White blood count (Fig.25).
 - (1) Blood by finger or heel prick or venepuncture.
 - (2) Use WBC pipette (white bead) 0.05ml blood.
 - (3) Take WBC diluting fluid to fill chamber (1ml i.e. 1:20 dilution).

- (4) Count the WBC in two large corner squares not the central ruled area.
- (5) Add the number in each large square and add 00 to the total gives WBC per cu mm.

4. ESR Estimation.

Westergren's method.

- (1) Use citrated blood and not oxalated.
- (2) In a clean dry Westergren tube (30 x 2.5mm) draw blood up to mark '0'.
- (3) Mount the tube on the stand.
- (4) Take reading after one hour i.e. height of clear layer of plasma below which the RBC's have sedimented.

5. Differential WBC (Leishman stain).

Film Preparation (Fig.26).

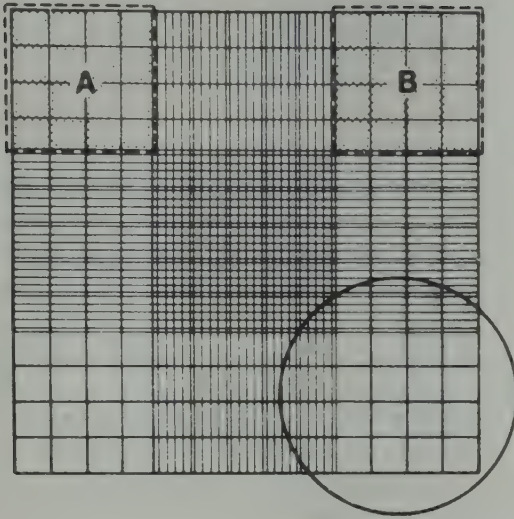
- (1) Put a small drop of blood on a clean slide 1 cm from the end.
- (2) Put the slide on the table with drop facing upwards.
- (3) Apply the spreader slide with its edge touching the drop and the smooth edge in contact with the surface of first slide at the natural angle for the bevel.
- (4) Spread evenly along the slide and allow to dry and place in staining trough.
- (5) Put 10 drops of Leishman's stain over film covering it completely.
- (6) Rock slide from side to side to give uniform spread of stain and after one minute add 20 drops of distilled water.
- (7) Blow on slide through a glass pipette to mix the stain with water and leave for 5 minutes.
- (8) Wash off the stain with tap water and immerse slide for 15 minutes. Dry slide and examine with oil immersion lens.
- (9) Count 100 cells. White cells in normal peripheral blood.
 - (a) Neutrophils have multilobed nuclei, neutrophilic fine granular cytoplasm. They form 50–70 per cent of the cells.
 - (b) Eosinophils have multilobed nuclei with coarse pink eosinophilic granules, 1–4 per cent of white cells.
 - (c) Basophils have a bilobed nucleus pale blue basophilic granules in cytoplasm.
 - (d) Lymphocytes have large or small round nucleus with rim of clear cytoplasm, 25–30 per cent of white cells.
 - (e) Monocytes have kidney-shaped nucleus haemophilic reticular cytoplasm.

6.2.4.5. Swabs of Throat, Nose and Rectum.

1. For throat swab ask the patient to open his mouth and lightly rub a small area of the throat with a sterile swab. Make slide and stain (Gram). Examine the swab. If facilities are available and time permits send another swab for culture to your referral hospital.
2. For nasal swab, take a swab and pass it into the nose lightly touching the mucosa. Make a smear on slide and stain for organisms and examine.

Figure 25

CELL COUNTING
Neubauer Counting Chamber



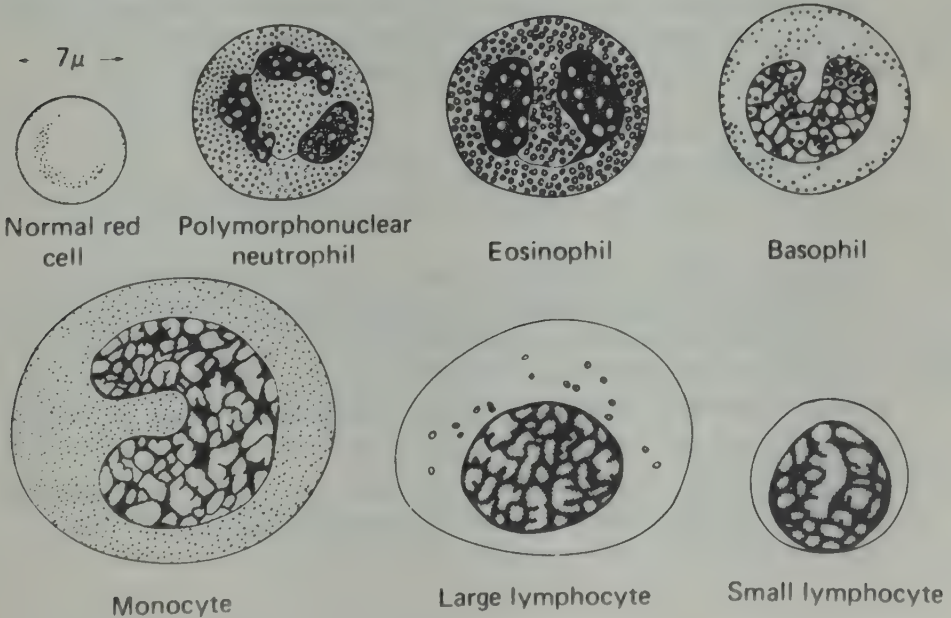
Blood (1 : 20)
A + B add 00 =
leucocytes per cu.mm

C.S.F. (undiluted)
add 0 = leucocytes per cu.mm

Urine count cells in entire ruled
area (3 x 3mm) = 0.9mm³

Figure 26

TYPES OF WHITE CELLS



6.2.4.5

6.2.5

6.2.6

6.2.6.1

3. The rectal swab: With your left hand stretch the perianal skin and loosen the tone of the sphincter muscles. Pass the swab into the anal canal for about an inch and rotate it over the mucosal surface. Take out the swab. When searching for thread worm ova, rub the swab on the perianal region.

6.2.5. Tuberculin Testing.

The amount of tuberculin is measured in Tuberculin Units ($1\text{ TU} = 0.00002\text{ mg PPD}$). Tuberculin in simple solution is absorbed by glass but this can be prevented by adding Tween 80. In clinical work 1 TU of a solution containing Tween 80 is equivalent to 5 TU of a solution without it. In practice (with Tween 80 solution) 1 or 2 TU are used (0.1 ml of 1:10,000 solution of PPD = 1 TU; solution 2 mg PPD to 1000 ml).

Using the technique for intradermal injection (6.2.7.1) inject the measured (0.1 ml) of the required fluid raising a weal. After 48 hours measure the **diameter** of the area of **induration** and record it in mm. Do not record negative or positive without a measurement; 6–8 mm can be regarded as significant. Remember young children, malnourished children and ill children give weaker (i.e. smaller) responses than older or healthy children. Active tuberculosis can occur with a 'negative' (i.e. weak or absent) reaction.

BCG is sometimes used to demonstrate tuberculin sensitivity. The dose of tuberculin given is larger than in the standard test and shows a lower grade of sensitivity. When PPD solution is available BCG should not be used for testing.

6.2.6. Treatment of Dehydration.

The central problem is to restore the child's loss of electrolyte fluids by the technique most appropriate to the situation. The appropriate technique depends upon the degree of dehydration present and the methods most immediately available. **Most children will respond to oral treatment.**

6.2.6.1. Oral feeding techniques.

Most important. Most cases (Fig. 29).

1. Fluid by mouth is always the method of choice unless the child is too ill (5.2.6.2).
2. Keep a supply of powders (5.2.6.2) in plastic bags always available in the PHC and in subcentres. You and all your health workers must always carry them with you. Try to provide yourself with standard measures like those shown in Fig. 27 or improvised as in Fig. 28.
3. If not available a solution of salt and sugar can be made at home (5.2.6.2).
4. Give Chlorpromazine 5 mg if child is vomiting.
5. Mother or helper must sit and feed the child with a spoon (200 ml per kilo/24 hours required) after an initial drink: flavouring may be added.

6.2.6.2. Intragastric Drip.

1. For the child who is repeatedly sick or refuses fluid or whose parents will not give it.
2. Can be done by any trained health worker.
3. Oral feeding fluid is used, half strength below six months and one-third strength below one month.
4. A catheter is passed into the stomach (6.2.10.6) and attached to a drip set.
5. If vomiting has been present the stomach is first washed with normal saline or sodium bicarbonate solution.
6. At first the rate 10–15 drops per minute for about 30 minutes then if no difficulty increase the flow to 30 drops per minute.
7. Calculate intake in usual way (5.2.6.2).
8. Possible difficulties are vomiting, distension and very occasionally the fluid may seem to be passed immediately per rectum.
9. If difficulties exist give intravenous infusion.
10. Assess as in 5.2.6.2 then continue, try oral or give intravenous.

6.2.6.3. Intravenous Infusion.

Always have sets ready. Cut down (6.2.6.5) rarely necessary. Common sites internal malleolus or at elbow (Fig.31).

1. Use intravenous infusion when urgent or a large amount of fluid is given over a period of time (5.2.6).
2. Make sure the following are ready:
 Container with fluid to be infused (5.2.6).
 Infusion set consisting of: (Fig.30)
 Sterilised needle for the upper end of the infusion set.
 Tube.
 Drip chamber.
 Adapter with needle.
 Clamp to regulate the speed of infusion.
 Airway (unless fluid is in a self-collapsing container).
 Infusion stand.
 Adhesive tape.
 Spirit for skin.
3. Introduce the connector needle into the upright container after applying spirit to the cork of the container.
4. Introduce the airway into the container, if the container is not collapsible.
5. Hang the container on the stand and allow the fluid to run through rapidly to expel all air from the set.
6. Clamp the tubing.
7. Introduce the needle attached to the syringe into the vein. (Fig.30).
8. Remove the syringe, connect the adapter of the set to the needle and release the clamp. Ensure by looking at the drip chamber and the needle that the fluid is going into the vein.

Figure 27

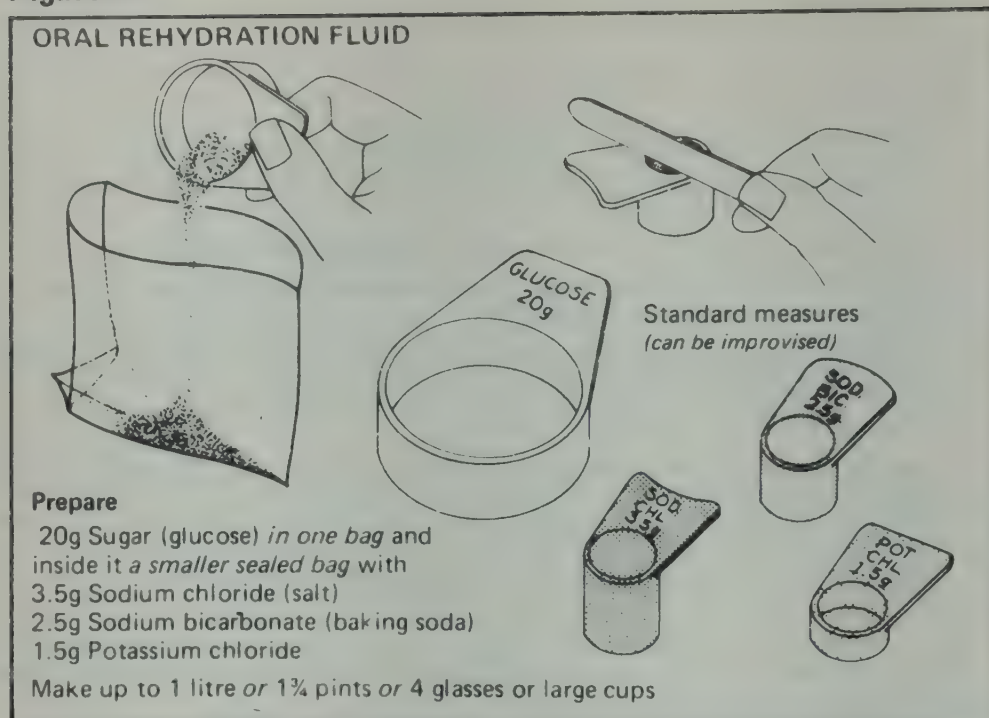


Figure 28

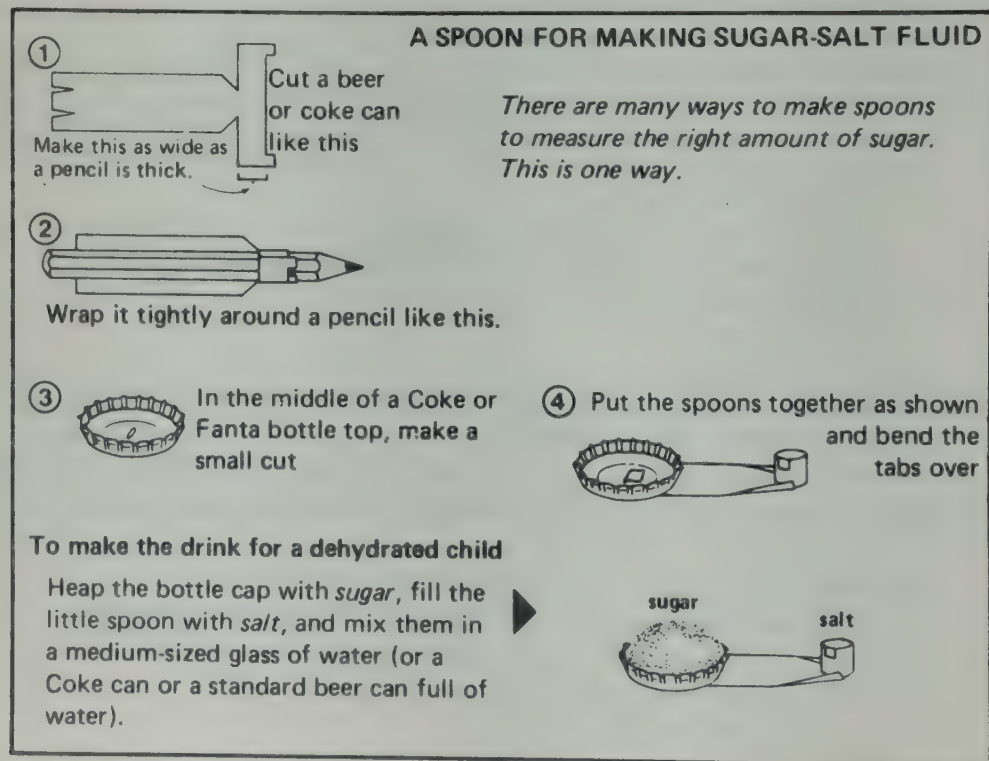


Figure 29 TREATMENT OF DIARRHOEA

Give sugar-salt fluid by mouth. First enough to replace fluid already lost, then to replace further losses until diarrhoea stops. Use UNICEF or pre-packed rehydration glucose-salts if possible (Figure 27).

FOR MOTHERS

If no pre-packed, use sugar-salt fluid. Use improvised measures (Fig.28) or 5ml teaspoon. Taste fluid before use, no saltier than tears.

For one glass fluid (250ml) take 5ml teaspoon (will take a thumb) level teaspoonful sugar (glucose if possible) tip of spoon of salt



Give one glass for each stool passed.

FOR HEALTH WORKERS

Approx 4 glasses = 1 litre if no other measure available. Sugar (glucose) 8 level teaspoons

Salt 1 level teaspoon

Baking soda ¼ teaspoon 1 if available

Potassium Chloride ½ teaspoon

Dissolve in one litre (4 glasses) boiled water.

If Baking soda and Potassium Chloride are not available, then give same amount of salt i.e. ½ teaspoonful.

REPLACEMENT

TO MAKE UP FLUID LOST GIVE IN 2-4 HOURS SUGAR SALT SOLUTION

Age	10% approx. weight (ml)	No. of glasses (with 250ml each)
→ 3 months	400	1½
3 months	500	2
6 months	600	
9 months	700	3
12 months	800	
18 months	900	4
24 months	1000	

Age	10% approx. weight (ml)	No. of glasses (with 250ml each)
2½ years	1100	5
3 years	1200	
3½ years	1300	
4 years	1400	6
4½ years	1500	
5 years	1600	

TO REPLACE FURTHER LOSSES UNTIL DIARRHOEA STOPS:

Adult: 2 glasses each stool

Child: 1 glass each stool

If vomiting, add one glass each vomit.

CHECK CONDITION AND FLUID INTAKE FREQUENTLY

Check if urine is being passed: 2-4 hourly.

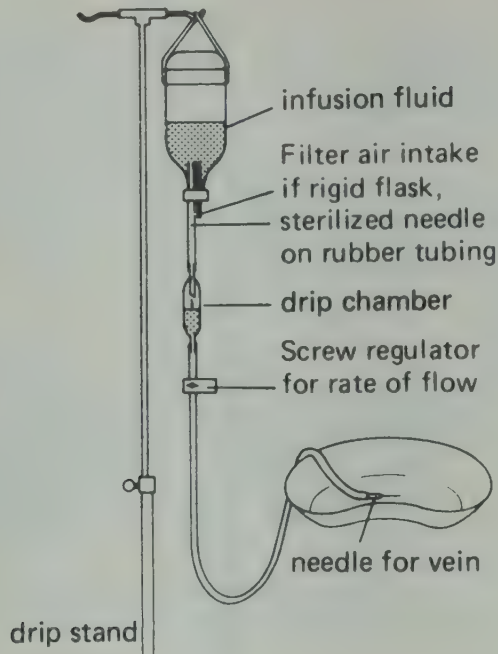
Check pulse at wrist or in foot.

Satisfy thirst -- give as much fluid as patient wants.

More than replacement will not harm if patient is thirsty and wants more to drink.

MAINTENANCE OF LOSSES

Figure 30
INTRAVENOUS INFUSION



9. Fix the needle and the tubing to the skin with adhesive plaster and the arm to a splint.
10. Adjust the rate of flow to about 30 drops per minute (5.2.6).
11. Let the mother sit beside her child, holding his hand and looking after him. Give only sips of water by mouth whilst the infusion is running.

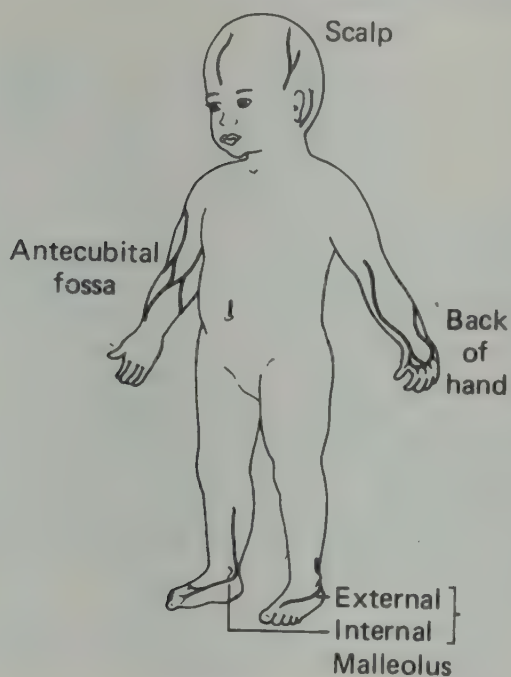
6.2.6.4. Scalp Vein Infusion (Fig.32).

Infants only.

1. Shave an area of scalp.
2. Clean the area with spirit, apply Tinc. Iodine followed by more spirit.
3. Pass scalp vein needle into the vein in the direction of the blood flow.
4. If there is any bleeding due to counter pressure, stop by pressing with gauze pieces.
5. Fix the needle and tube to the skin with sticking plaster.
6. Regulate fluid as 6.2.6.3 and 5.2.6.
7. You can use scalp vein needle in any visible vein, e.g. in dorsum of hand or forearm, foot or ankle.

SITES OF SUPERFICIAL VEINS

Figure 31



SCALP VEIN INFUSION

Figure 32

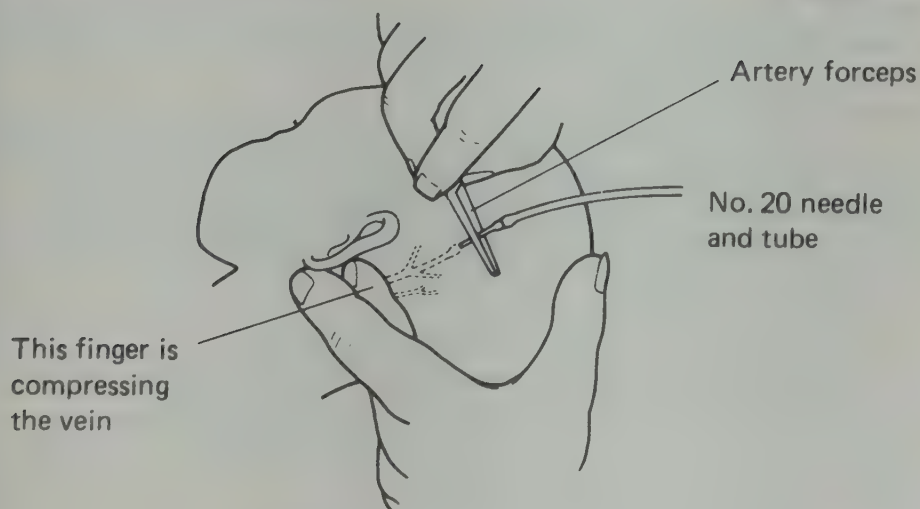
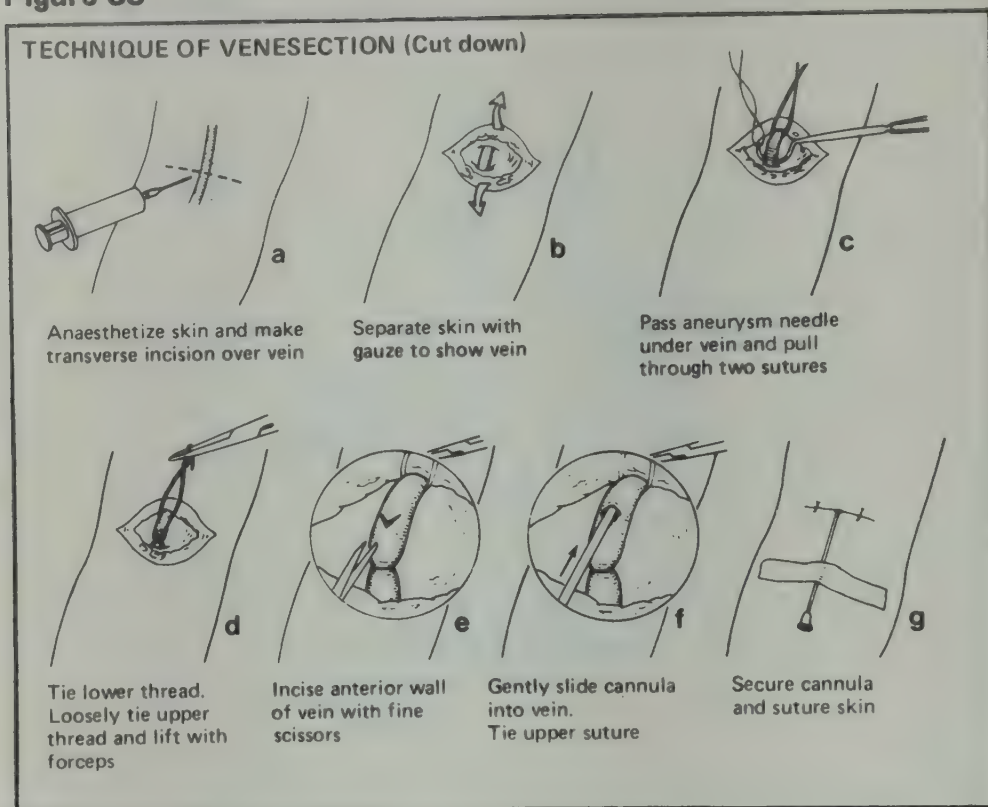


Figure 33



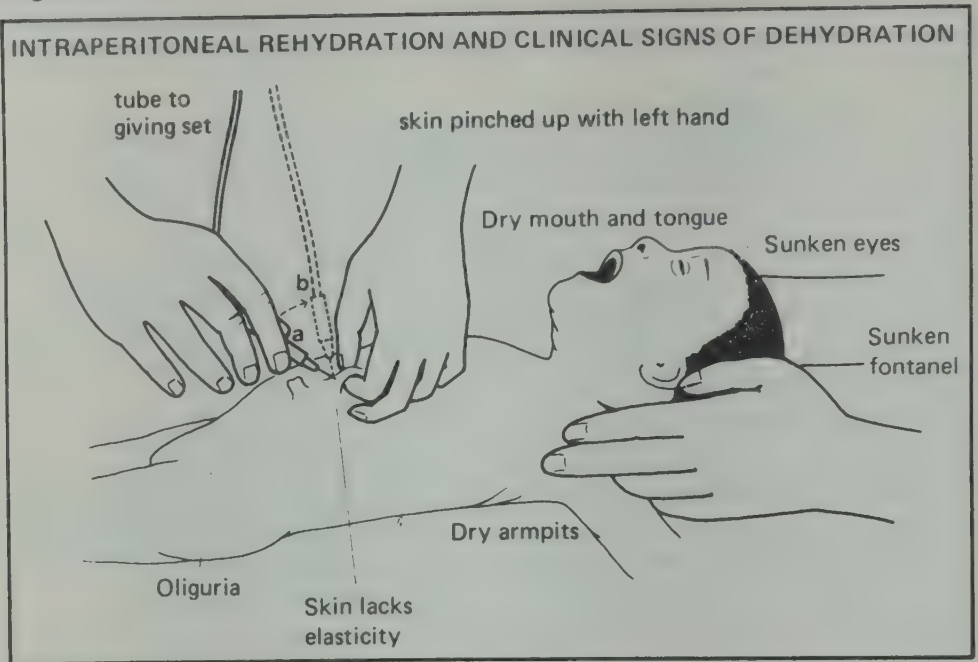
6.2.6.5. Venesection (Fig.33).

A tray must always be ready and set for use but 'cut down' rarely necessary.

1. Use a venesection technique for infusion when peripheral veins are difficult to find, e.g. in peripheral failure.
2. Tray must contain ready sterilised for use: scalpel with blade, cannula, two pairs artery forceps (fine if possible), dissecting forceps, aneurysm needle, gauze pieces, threads (catgut No.0), 10ml syringe, local anaesthetic. If small size cannula is not available, then take an old big bore needle (BD No.20). Cut the bevelled end with a file. Smooth the needle against a marble or smooth stone. Sterilise it.
3. Fix the child's leg with the medial malleolus facing you.
4. Clean the part with spirit. Apply Tinc. Iodine followed by spirit.
5. An assistant should hold the limb to help to distend the veins.
6. Spread sterile towel over the surrounding part of the leg and table or, if available, use a towel with a hole in centre.
7. Infiltrate — 2 per cent Lignocaine intradermally and subcutaneously slightly above medial malleolus over the site of the selected vein.

8. Make transverse incision slightly above and anterior to medial malleolus.
9. Separate subcutaneous tissue with the help of artery forceps or gauze till the vein is visible. Swab oozing of blood with gauze. Separate and clean the vein for 1–2cm.
10. Pass the aneurysm needle under the vein and pull through two pieces of catgut. Tie the lower thread about the vein.
11. Knot the upper end loosely and lift the ends of the thread in artery forceps so that the vein is controlled and slightly raised.
12. With fine scissors cut the vein in its anterior wall so that the lumen can be seen (or put a 'V'-shaped cut on the side of the vein). The procedure is delicate and must be carried out in a good light.
13. Introduce the cannula gently into the vein; if correctly placed it will slide in **easily without resistance**. Drops of blood will come.
14. Tie the upper ligature over the cannula holding it in place.
15. Introduce 1–2ml of fluid to test the position of the cannula. Then inject 5–10ml slowly to overcome any spasm which could reduce the rate of flow. Swelling in the surrounding area 2–4cm above malleolus indicates that the cannula is not in the vein. Probably it is in the perivenal tissue. In that case reintroduce the cannula making sure it slides in without resistance.
16. Connect the cannula to intravenous giving — set; check and set the rate of flow.
17. Suture the skin and fix the cannula with dressing, cover the wound with sterile gauze.
18. Fix the limb to a splint with bandage.
19. Write down directions for speed of flow and amount to be given in a fixed time.

Figure 34

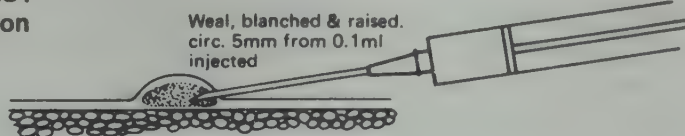


6.2.6.6. Intraperitoneal Hydration (Fig.34).

1. Valuable as emergency method short duration whilst intravenous drip is set up or if intravenous infusion is not possible.
2. Place the child on a couch or table.
3. Prepare a bottle of intravenous Electrolyte Fluid by warming it to body temperature in water.
4. Arrange the giving set and fill it with the fluid removing all air from the tube.
5. Feel the abdomen to make sure the liver and spleen are not greatly enlarged.
6. Clean the skin over the lower abdomen with antiseptic solution.
7. Push the needle through the skin at the outer border of the rectus on either side of the umbilicus.
8. Open the regulator of the drip set and holding the needle vertically push it into the abdominal cavity. As it enters the fluid will flow.
9. Fix the needle with strapping and allow the required amount of fluid to enter the abdomen in about fifteen minutes.
10. Remove the needle and cover the puncture with adhesive tape.

Figure 35.

TUBERCULIN TEST
Intradermal injection



6.2.7. Injections.

6.2.7.1. Intradermal.

1. To test sensitivity of Penicillin or Serum, for BCG vaccination and tuberculin testing you must give an 'intradermal' injection.
2. Take the material in a 2ml syringe or tuberculin syringe and attach No.22 needle.
3. Clean the site with spirit (except in tuberculin test), stretch the skin and pass the needle into but not through the skin.
4. Inject the material which will raise a weal 5–6mm in diameter (Fig.35).

6.2.7.2. Intramuscular.

1. 5ml or 2ml syringes, needles No.22–23 for water soluble injections and No.21 for oily injections should be boiled. Keep ready, spirit and cotton swabs soaked in spirit. Wash your hands and do not wipe them with unsterilised towel. Let your hands dry in the air.
2. Clean the tips of the forceps, freshly sterilised in the morning, with spirit swab. Pick up the barrel of the syringe, attach the needle and then fix the plunger.
3. Clean the rubber seal of the injection vial with a spirit swab or cut the neck of the ampoule with a file.
4. For injections when distilled water is to be mixed with another substance, take the water from the ampoule and put in the vial.
5. Take out the needle, stir or shake the vial to mix the drug or vaccine.
6. Inject 1–2ml of air into the vial and the pressure will then force the solution into the syringe. In case of an ampoule, suck out the material with the tip of the needle.
7. Select for injection a site with a muscle mass; places commonly used are the upper part of the deltoid region, triceps, outer and upper quadrant of gluteal region or lateral aspect of thigh.
8. Clean the injection site with a spirit swab. Stretch the skin with your left hand and, holding the syringe with your right, introduce the needle at right angles to the surface for about 1.5–2cm. Withdraw the plunger to confirm that the tip of the needle is not in a vein. Inject the drug slowly.

6.2.7.3

6.2.8

6.2.8.1

6.2.7.3. Intravenous.

1. Give drugs intravenously when an immediate action is required or when the drug is irritant to tissues when given by other routes.
2. Select the antecubital vein. Sometimes another suitable superficial vein may be preferred.
3. Apply pressure by hand, tourniquet or inflated cuff, above the chosen site. Vein will become distended as the venous return is blocked. Ask the patient, if co-operative, to open and close his fist several times to increase venous return.
4. Clean the area where injection is to be given with spirit.
5. Keep patient's hand steady; introduce the needle into the skin on the side of the vein, then puncture the vein from its front. Withdraw the plunger to confirm that the needle is in the vein. If it is the blood will flow easily into the syringe.
6. Release your hand, BP cuff or tourniquet and ask patient to relax his muscles.
7. Give the drug. Some drugs are given slowly whereas in dehydration a quantity of fluid may be given quickly.
8. While withdrawing the needle apply finger pressure at the site of the puncture to avoid blood leaking into the tissues.
9. Take out the needle and put the spirit swab on the injection site for a moment to absorb any blood.

6.2.8. Immunization Techniques.

6.2.8.1. BCG Vaccination (5.2.14).

1. Attenuated live bovine bacilli are supplied in ampoules containing 2mg or 5mg of freeze-dried organisms.
2. Add 2ml of distilled water and 2ml of normal Saline to 2mg ampoule of BCG vaccine.
3. Keep the prepared solution at 2°C to 4°C temperature.
4. If the solution is kept at room temperature then use within one hour.
5. Protect the vaccine from sunlight and chemicals.
6. Use BCG syringe and needle No.26 for the vaccination.
7. Choose a site on left deltoid region 5cm below acromial process.
8. Check arm to see that there is no old BCG scar. If there is a scar, enquire when was the vaccine given. It can be repeated after minimum of two years.
9. Do not clean the vaccination site with spirit or antiseptic.
10. Pass the needle through a flame.
11. Inject 0.1ml vaccine (containing 2–3 million bacilli) intradermally producing a weal of 5–7mm.
12. A papule develops at the site of injection within four to six weeks. If a reaction develops within two to three days then it is known as accelerated reaction. This happens in an individual previously sensitised to tuberculin and further investigation might be necessary.

6.2.8.2. Diphtheria, Pertussis and Tetanus (5.2.14).

1. Make sure:
 - a. Child has no fever.
 - b. The vaccine has been kept correctly.
2. Inject 0.5ml intramuscularly 4—5cm below the anterior superior iliac spine on the lateral side of the thigh, or into the thick part of the deltoid muscle.
3. Give the mother Paracetamol or Aspirin tablet or syrup sufficient to last 24 hours and tell her to use it if the child becomes irritable or febrile.
4. If any redness or pain at the site of injection apply cold compresses.

Diphtheria and Tetanus toxoid vaccine is given in the same way.

Pertussis vaccine is not given to children over two years of age, to any child who has had convulsions or fits, has any sign of brain damage or mental retardation, or where there is a family history of fits or epilepsy.

Tell the mother when the next dose is due — in a way she can understand.

6.2.8.3. Oral Polio Vaccine.

(Sabin's vaccine, live attenuated virus.)

1. Make sure:
 - a. The child does not have vomiting or diarrhoea.
 - b. He/she is not given breast feeds $1\frac{1}{2}$ —2 hours before or after the dose.
 - c. The vaccine has been kept at 3° to 5°C .
2. Introduce eight drops of vaccine directly into child's mouth from a dropper which has been boiled and cooled. Same dropper can be used without boiling again for all the children.
3. Tell the mother the date for the next dose in a way she can understand.

6.2.9
6.2.9.1
6.2.9.2
6.2.9.3

6.2.9. Surgical Techniques.

6.2.9.1. Sterilisation of Instruments.

1. Boil steel instruments (without sharp edges) in water at 100°C for thirty minutes. After cooling the instruments are removed with sterile forceps.
2. Put steel instruments with sharp edges, such as scissors, in 100 per cent concentrated Dettol for forty-eight hours and before use wash with boiling or distilled water.
3. Autoclave all surgical instruments once a day. Autoclave is set for eighty minutes, the time required for steam to collect and the temperature to reach 150°C.
4. Autoclave for one hour and then allow to cool. A signal label coloured in in pink and white should be put with the instruments. Original colour of paper changes to black and white when autoclaving is finished.

6.2.9.2. Wound Stitching.

Wounds (unless septic or potentially septic) should be closed by suture to obtain healing by first intention:

1. Clean the wound with antiseptic such as Dettol or Hydrogen Peroxide.
2. Infiltrate the surrounding skin with local anaesthesia (2 per cent Lignocaine).
3. Ligature any bleeding vessels.
4. Put in a tubular drain if further bleeding expected. Connect it to an evaluation bottle. Remove the tube when bleeding has ceased.
5. In superficial stitches include only skin and subcutaneous tissues. Pass the needle perpendicularly through the skin in order to avoid inversion of edge. Edges must not be drawn together under tension or they will simply cut out and result in delayed healing.
6. For deep stitches include in addition to skin and subcutaneous tissue, one or more layers of muscles to obliterate the dead space in the deep wound. Tie all the knots on the same side of the wound.
7. Use smooth non-absorbent suture material like firm silkworm gut, nylon or the specially treated threads for skin.
8. Give Tetanus Toxoid or Anti Tetanic Serum when necessary (5.2.12.17). ATS given only after skin sensitivity test.

6.2.9.3. Thoracocentesis and examination of pleural fluid.

If it is necessary to do this at PHC because patient cannot be moved to hospital:

1. Get consent of parents or guardian in writing.
2. Assess level of fluid by percussion and auscultation.
3. Inject Atropine (0.3mg for children) intramuscularly half an hour before the aspiration is attempted.
4. Wash up as you would for any surgical procedure.
5. Take a needle with No.20–21 gauge and check its patency.

6. Check patency of biway connection.
7. Check that the 20ml aspiration syringe is perfectly air tight.
8. Put 100cc Dettol or Formalin in two empty Saline bottles.
9. Re-confirm clinically the side of the effusion.
10. Sit the patient on the bed with both arms resting on a low table placed across the table/cot.
11. Clean half of the back with spirit swabs starting from mid-scapula line up to the spinal column and midaxillary line.
12. Paint the skin with Tinct. Iodine and clean the area with spirit.
13. Take 5ml of 1 per cent Lignocaine and inject 1 ml under the skin in inter-costal space below angle of scapula. Raise a weal then inject Lignocaine deeper infiltrating the tissues. Allow the anaesthesia to act for two minutes.
14. Connect No.20—21 gauge needle (in case of pus, 17 or 18 gauge) and syringe.
15. With screwing motion introduce needle in the anaesthetised area until you reach the pleural cavity.
16. Hold the needle steady while aspirating to prevent leakage of air.
17. Take first 2ml of fluid for culture cytology and chemistry, in culture tube and oxalate and plain culbs.
18. Place the end of biway in the Dettol bottle. Aspirate the pleural fluid up to 20ml, alter the valve to direct fluid into the bottle. Continue to aspirate the fluid until it is exhausted or you have removed 300ml (the maximum in one aspiration).
19. Remove the needle and seal the puncture wound with Tinc.Benzoin.
20. Turn patient on the opposite side for half an hour.
21. Observe respiration, pulse and temperature half hourly during aspiration.
22. If the fluid is straw coloured (tuberculous) treat at Primary Health Centre; if pus send patient to district hospital for drainage.

6.2.9.4. Lumbar Puncture.

If you cannot get the patient to hospital:

1. Do lumbar puncture when there are signs of meningeal irritation, unexplained coma, acute or chronic infection of the central nervous system. Do not do LP if there are signs of increased intracranial pressure, of tumour in posterior fossa, local lesions of vertebrae or skin infection.
2. Place the patient on his side at the edge of the bed. With help of an assistant, draw up the patient's knees and bend his head forward to get maximum flexion.
3. Clean the skin in the fourth and fifth lumbar vertebral spaces with spirit, then Tinc. Iodine followed by white spirit. Use the intervertebral space just above or below a line passing between the highest points of the two iliac crests.
4. Insert spinal needle No.20—27 gauge with stylet in position or large ordinary needle No.20—21 through the skin in the midline perpendicular to the back and pass it forward with slight tilt towards your left till it reaches the tough spinal ligament. Pierce that and then you will feel a sudden cessation of

resistance indicating that the needle has entered the subarachnoid space. Withdraw the stylet and CSF emerges in drops.

5. The CSF will drop or flow out. Collect in a plain or oxalate bulb for cytology and chemistry.
6. Take out the needle and apply Tinc. Benzoin seal.

6.2.9.5. Tracheotomy

Emergency procedure for laryngo tracheal obstruction.

1. Get written consent from the child's father or guardian.
2. Work in good light.
3. Lie the patient on his back and extend the neck by putting a sandbag underneath the shoulders.
4. Clean the area and infiltrate with 1 per cent Lignocaine with Adrenaline.
5. Make a vertical midline incision from the thyroid notch to the suprasternal notch through skin, subcutaneous tissue and deep tissues.
6. Using retractors, separate the vertical muscles of the neck in the midline.
7. Palpate and identify the trachea. Hold the thyroid cartilage firmly with the finger and thumb of left hand. Do not let go until tube is in place.
8. Make a transverse cut in the pretracheal fascia just below the cricoid cartilage.
9. Retract the isthmus of the thyroid with a blunt hook or ligature in two places and cut between.
10. The first three or four rings of the trachea will come into view.
11. To reduce coughing inject a new drops of 2 per cent Lignocaine into the trachea.
12. Incise the trachea longitudinally.
13. Pass the tracheal dilators keeping the convexity forwards; introduce the outer tracheotomy tube with pilot.
14. Swab and ligate any bleeding vessels.
15. Fasten the tape attached to the outer tube round the neck and insert the inner tube.
16. Dress the wound.
17. Post operatively suck out the tracheotomy tube with a rubber catheter every fifteen minutes.
18. Administer Oxygen through tracheotomy tube and keep watch on pulse, respiration and temperature. Watch for bleeding, respiratory discomfort, cyanosis or surgical emphysema.
19. Give appropriate antibiotics and other therapy.
20. Change and clean the inner tube every two hours and outer tube after seventy-two hours and then once daily as long as necessary.
21. The moist sterile swab round the tube should be changed as soon as it becomes soiled.
22. After a few days when breathing has improved and there are no secretions insert tubes of progressively smaller diameter or use a cork plug. If there

is no discomfort the tube should first be closed to three-quarters of its diameter, and then completely.

23. The tube should be removed after successful blocking of the hole and observation for a day afterwards.
24. Continue dressing the wound until it heals.

Table 8
Apgar Scoring at Birth

Sign	0	1 point	2 points
Heart rate	Absent	Less than 100/min	More than 100/min
Respiratory effort	Absent	Weak cry	Strong cry
Muscle tone	Limp	Some flexion of limbs	Well flexed
Reflex irritability response to skin taps	None	Some movement	Cry
Colour	Blue or pale	Body pink	Pink

At birth most infants score 7–10, cry and are vigorous.

Mild (blue) asphyxia or depression score 4–6 points.

Severe (white) asphyxia scoring 0–3 points requires **immediate resuscitation**.

6.2.10. Care of the Newborn Infant

6.2.10.1. At Birth (also 5.2.13).

1. As soon as the head is born feel for cord round neck; clean the mouth gently with a piece of dry sterile gauze wrapped about your right little finger.
2. With two separate wet swabs, soaked in Saline, clean each eye.
3. Hold the baby by the feet till he cries and clean his mouth of any further material. First cry within one minute.
4. As soon as cord stops pulsating, clamp it between two artery forceps 5cm from umbilicus. With sterilised scissors cut the cord between the two clamps.
5. Tie the cord at two places with sterile warp thread and apply Tinc. Benzoin seal.
6. With swabs soaked in sweet oil or liquid paraffin clean the skin and head to remove vernix caseosa.
7. Wrap the baby in clean cloth or towel. Fill a clean bowl with lukewarm water, bath the baby and dry him.
8. Weigh the child and record the weight if parents agree.
9. Wrap the baby with light cloths, soft washed linen. Keep near mother.
10. Diapers should be changed whenever the infant passes urine or stool. Buttocks and genitals should be kept as dry as possible.
11. Encourage breast feeding. Colostrum is particularly valuable to the baby (5.2.4).

6.2.10.2. Assessment of Asphyxia.

Foetal asphyxia is the result of Oxygen deprivation. Signs depend upon the degree and duration of deprivation. Two types described:

1. Blue asphyxia — Apgar score 4—6
 - a. Skin cyanotic.
 - b. Heart strong and regular.
 - c. Muscle tone good.
2. White asphyxia (serious condition) — Apgar score 0—3
 - a. Skin pale
 - b. Heart rapid and weak or very slow and weak.
 - c. Muscle tone poor — child is limp.

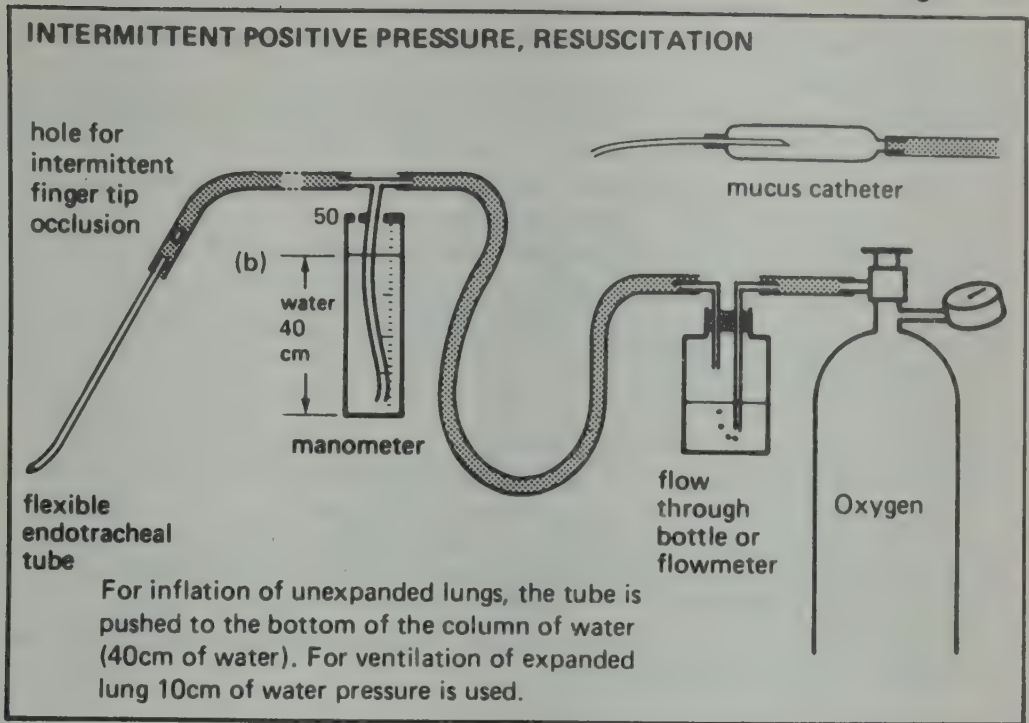
The degree of asphyxia is measured by Apgar Scoring (Table 8).

In Blue asphyxia spontaneous respiration soon begins but there may be respiratory obstruction.

In White asphyxia spontaneous respiration, if present, is gasping.

For both conditions action is required to get air or oxygen into the lungs and therefore into the blood stream (6.2.10.3 and 6.2.10.4).

Figure 36.



6.2.10.3. Resuscitation.

1. Hold the baby by the feet with the head low.
2. Clean airway by sucking the secretions from the throat with a soft rubber catheter attached to a plastic or glass bulb. The other end of the bulb is connected to a rubber suction mouthpiece (Fig.36).
3. If breathing does not begin after two or three minutes, gently flick heels or splash tepid water on the baby's back.
4. Insert nasal catheter and give Oxygen at 4 litres per minute (Fig.36).
5. Aspirate gastric contents.
6. If the mother has been given Pethidine, then inject 0.25mg of Nalorphine into the umbilical vein.
7. If breathing does not begin within 4–5 minutes and heart rate is less than 100 per minute, further action is required. Either
 - a. Carry out mouth-to-mouth resuscitation as follows:
Extend the baby's neck slightly, place a thin layer of gauze over the mouth and nose. Then putting your mouth to his puff air into his lungs, watching to see if the chest moves. The puffs should be about 30 per minute and you can increase the oxygen content by leading a catheter from a cylinder into your mouth. If the baby's heart fails during resuscitation try external cardiac massage by pressing with two fingers over the lower half of the sternum; pressure should be exerted rapidly and regularly about twice a second.
 - or b. Do endotracheal intubation and give Oxygen by intermittent positive pressure. In severe white asphyxia do this immediately (6.2.10.4).
8. Give intravenous Sodium Bicarbonate solution (6.2.10.5).

6.2.10.4. Endotracheal Intubation.

1. Place the infant on a high table and put a folded towel under shoulders to extend the neck.
2. An assistant holds the head steady while the operator opens the baby's lips and mouth with his right thumb and forefinger.
3. Pass the infant laryngoscope with left hand for 2cm along the cheek. Then swing over the back of the tongue and larynx.
4. View the larynx by depressing tongue and epiglottis.
5. Carry out gentle suction till glottis is seen as a dimple.
6. Slide the curved endotracheal tube along right side of mouth and then through the glottis for 2cm.
7. Withdraw the laryngoscope.
8. Breathe a few short puffs of air down the tube and auscultate the chest on both sides. If the tube is in the trachea you will hear air entering each lung.
9. With adhesive tape attach the tube to mouth and give Oxygen. Use intermittent positive pressure by blocking the side connection with a finger. The apparatus must be so arranged that the pressure cannot reach more than 40cm of water (Fig.36).
10. Continue until spontaneous respiration is established and mucous membranes are pink or the heart ceases to beat.

6.2.10.5. Treatment of Acidosis.

1. Infants with White asphyxia are acidotic as well as anoxic. When the endotracheal tube is in position and IPP Oxygen has been started, acidosis can be counteracted by giving solution Sodium Bicarbonate 7.5 per cent into the umbilical vein.
2. To do this you need a tray with sterile 10ml syringes, sterile cotton swabs soaked in rectified spirit in a sterile covered container, ampoules of Sodium Bicarbonate solution 7.5 per cent and Dextrose 10 per cent.
3. Into the 10ml syringe draw 3ml of Sodium Bicarbonate solution 7.5 per cent and 7ml Glucose 10 per cent.
4. Palpate the stump of the umbilical cord for the vein with your left hand and rub the area with a cotton swab held in your right.
5. Keeping your left hand on the cord and fingers on the vein take the 10ml syringe in your right hand. Insert the needle into the vein for about 3cm.
6. Move your left hand to steady the needle and syringe and with your right withdraw the plunger. If blood enters the syringe the needle is correctly placed and you can slowly inject the contents of the syringe.
7. Then slowly withdraw the needle and press the cord with another cotton swab.
8. Continue with intermittent positive pressure Oxygen until infant is breathing spontaneously and colour is good.

6.2.10.6. Gavage Feeding.

Intermittent gavage feeding is used when the baby has weak suckling and swallowing reflexes or tires easily. It can be done safely with minimal handling. However, in a sick infant with danger of abdominal distension and regurgitation, the risk of aspiration is greater.

Procedure for gavage feeding: A No.5 or 8 F polyvinyl or rubber feeding tube is used.

1. Measure the distance from the xiphisternum to the tip of the ear lobe and then tie a thread on the tube at this length.
2. Pass the tube through the mouth to this mark.
3. Make sure the tip of the tube is in the stomach by putting the free end of the catheter under water, to ascertain that air is not returned with respiratory movements.
4. Introduce feed slowly by gravity flow. Do not inject under pressure from a syringe.
5. Pinch the tube as you remove it. This prevents fluid entering the lungs.

Indwelling nasogastric tubes are used for long term feeding of small premature infants. A small polyvinyl (rather than rubber) catheter reduces local irritation. The location of the end of the tube must be checked before each feeding to be sure it has remained in the stomach. The presence of the tube in the nose decreases the airway slightly, and this may be a significant problem in some babies. If mucus begins to collect in the nares, the tube should be removed. Infection may develop in the nasopharynx or middle ear.

Bottle feeding can be substituted for gavage feeding gradually as the baby shows increased activity before feeding and begins to suck on the gavage tube. Make transition slowly, babies tire easily with bottle feeds. On bottle feeds, the baby will go from a 3 to a 4 hourly schedule, taking larger quantities with each feeding. A rapidly growing premature infant will take 150 calories, 180ml/kg/day or more. Demand feeding of prematures is desirable — intake will vary with different babies, and each will tend to establish his own pattern of intake. Feeds are satisfactory if associated with adequate weight gain.

6.2.10.7. Intravenous Feeding (Newborn and Premature Infants).

1. Sick infants: Intravenous fluids can be started either via a peripheral vein or an umbilical catheter if the baby is sick and oral feeds cannot be tolerated. Use 10 per cent Dextrose in water (65–80ml/kg/day), with maintenance electrolytes added.
2. Premature infants: Early feeds, even in small premature infants, are better than periods of prolonged starvation and dehydration. In very small or ill babies, intravenous feeding of 10 per cent Glucose in water with maintenance electrolytes will fill this need until oral or gavage feeding can be started safely. Babies who are well and will tolerate oral feed may be fed by bottle or gavage.
3. Termination of intravenous feeding: For first oral feed give boiled water. When water is tolerated well, formula feeds are started. A full strength formula containing approximately 20 calories per ounce

avoids the need for special preparation of more dilute or concentrated formula for premature infants. In very small infants the first gavage feed should be about 5ml. Volumes are then increased by 1–5ml per feed every three hours. The total twenty-four hours volume can be adjusted by varying the volume and frequency of individual feedings. With gavage feedings, Gastric emptying can be checked by aspirating the stomach before feeding until a regular feeding pattern has been established. Replace aspirated fluid and add milk to volume desired for that feeding.

6.2.11. Nasal Catheterisation for Oxygen.

1. Clean the nose and widen the nostrils.
2. Attach a catheter to the Oxygen tube and confirm that Oxygen is passing through the catheter by putting the tip of the catheter under water.
3. Pass the catheter through nose for about 4–5cm. It is then about 1cm beyond the nasal septum.
4. Fasten the catheter with adhesive tape to the side of the nose and the forehead.
5. Give Oxygen, use flowmeter if available, moisten as it bubbles through fluid as shown in Fig.36.

6.2.12. Care of Children before school.

6.2.12.1. Mechanisms of care.

Children's health depends upon their nutrition and protection from infections and infestations. Improved nutrition and increased protection will come only as parents and communities understand and accept how this can be achieved.

Your most important mechanisms are first the teaching and work of the FHW as she does her cycle of visits, and second the work of 'Under Fives' clinics. These clinics must be established and held regularly in the PHC, in the subcentres and in as many other villages as possible. They must be conducted primarily by the FHWs who refer children to you following Standing Orders. If nursery groups have been established in any villages you must try to assist the workers to extend their educational activities in the families of the children. You need to know the number of 'under five' children in each village and the FHW needs an active register (6.4.2).

6.2.12.2. The 'Under fives' Clinic.

Aims are to educate mothers, to prevent malnutrition, to supervise the growth of children, to protect against infection; to treat illness, diarrhoea, pneumonia, skin infections and other common disorders.

The service is given by the FHW, though a medical officer may be present occasionally — more often at the PHC than anywhere else. FHW must be taught to conduct the clinics supervised by the FH Assistant.

In villages the clinics may be quite small but at the PHC the attendance can be much larger and they are an important part of the work. Both in the PHC and in subcentres and villages volunteer village helpers can be of great assistance and must be encouraged.

There are four chief components of the clinic.

1. Weighing and inspection of the child.
2. Consultation with FHW or doctor or both followed by advice and treatment if required.
3. Group teaching by FHW.
4. Diffusion of information as mothers talk amongst themselves.

The arrangements in the clinic can be quite simple.

1. A place where mothers can come with their children.
2. A place where children can be weighed and notes kept.
3. A place for consultation.
4. In larger clinics with more than one FHW or FHS or a doctor there can be separate arrangements for immunization.

Make the waiting area as comfortable as possible: with seats of good height (35cm), with clean water available and an adequate clean latrine.

Make waiting time as short as possible and see mothers in the order they arrive unless the babies are ill when they must be seen **immediately**. Teach everyone in the clinic to look out for sick children.

Each mother in turn comes to the weighing place. If it is her first visit a new weight chart is started for the baby and its meaning is explained (7.5.3). If not the first time she either brings her child's record in its plastic container or presents her number or sign so that the records can be obtained.

In a small clinic the baby can now be weighed but at a large clinic the weighing is usually at another station. In the large clinic after weighing she waits for the consultation. In the small clinic this also can be at the weighing point.

At the consultation the nurse checks the baby's nutrition, observes weight trends, discusses feeding, checks immunizations; if child is ill she treats or refers according to her Standing Orders. If a doctor is at the clinic she takes the patient to him or he comes to her and both are present with the mother when the situation is discussed (important learning for FHW). Treatment may then be given or or the child occasionally stays in the PHC with the mother. The FHW can deal with about 90 per cent of all attendances. The other 10 per cent she sees with the doctor or refers the child to him.

Whatever the size of the clinic there must be some time given to group teaching (9.4) according to a teaching rota. When you are present you must use every opportunity for teaching both FHW and mothers. Education relates to growth, immunization, food child spacing and family planning, care in pregnancy. As the medical officer you must constantly try to strengthen the position of the FHW and her standing in the local population.

Anyone in the clinic who sees a baby is seriously ill must bring the baby forward so that you or the nurse can give immediate attention.

Section 6.3. TECHNIQUES OF TEACHING

6.3.1. Basic Principles.

Learning, the effort made by a person to acquire knowledge, skills or understanding (attitudes to the use of knowledge or skills) is the essential requirement of education and training. The student (the learner) must wish to learn. This wish or motivation may exist for many different reasons but it must be present. Some people can learn without help or assistance; most can learn more effectively if they are helped by a teacher. But the teacher must understand how to communicate this help so that it is suitable for the occasion. The teacher must also be able to create and control the situation and know precisely what he is doing at any given time and why he is doing it.

The first and possibly the most significant way a physician teaches is by the example he sets in his total manner of life and behaviour. You must never forget that you will always be observed and that your own behaviour must square with what you teach others. Thus first and foremost are your own actions in relationship to the care of other people and your involvement in the curative and preventive and health promotional activities which you must try to teach to others.

Your job as a teacher is to arrange the situations and the subject matter in such a way that you can be of maximum use to those you are helping to learn. Guiding principles allow you to fulfil this role. Every teacher must remember:

1. Learning is personal to the learner but the teacher must be able to grip and affect the student as an individual: this must happen whether the class is large or small. But the larger the class the more difficult it is to reach rapport with all students in it. You are fortunate that much of your teaching will be to individuals or small groups of people you know as individuals.
2. Learning must have meaning and significance for the learner, it must relate to previous experience and indicate future behaviour.
3. Teaching must aim at realistic objectives for the learner so that disappointment and frustration are avoided.
4. Teaching must have 'feedback': The learner must know what he has done, and what more he needs to do. Regular assessment is essential in all types of teaching.
5. Learning and teaching depend on good personal relationships. A teacher must never use fear, ridicule or sarcasm, towards the members of any teaching and learning group.

6.3.2. Preparation of Teaching.

Teaching needs preparation — how to prepare a session.

1. Define your objectives clearly both general and specific — so that you know precisely what your aims are.
2. Consider the content (subject matter) of the session.
3. Consider the most appropriate technique of communication for the situation, time and size of group and its needs.

4. Consider the physical facilities, ventilation, light, extraneous sounds; furniture; discomfort and interruption can spoil rapport.
5. Consider the use of visual aids; which are available and appropriate to the situation and the technique of teaching.
6. Plan for evaluation and feedback from the session — either immediate or after some time.

The general objective of your teaching of health workers will be to increase their understanding, knowledge and skills in the service of the mothers and children of the Community Development Block — to learn and practice MCH health care. Your objective in teaching mothers is to give them the wish for better health in their own family and understanding how to bring it about.

These general objectives are achieved by the summation of effect of many sessions each with a specific learning objective described under five broad categories. Information, skills, understanding, attitudes and appreciation.

Begin and end the session punctually.

6.3.3. The Lecture.

You are not likely to use this technique very much but remember that the method is not governed by the size of the audience. Lectures must be planned; and completed in the time available.

1. Decide your objectives.
2. Plan the sequence of arrangements of subject matter.
3. Consider the experience and background of the audience and make sure your presentation will arouse interest.
4. Stick to time — beginning and ending.
5. Be familiar with the information you wish to transmit; make careful arrangements if you use visual aids.
6. Plan for a question time and be prepared for likely questions.
7. Lecturing technique.

Beforehand check the room, lighting, noise and supplies of all materials.

Tell the audience what you are going to say.

Rouse interest with an illustration, a case or question.

Suit the pace to the information at any given time.

Keep the audience guessing.

Use conversational forms of address and speak to the students.

Summarise at the end.

Provide the audience with an outline if you wish to.

6.3.4. Group Discussion.

A form of teaching in general use in the Community Block. A technique very suitable for small numbers, where everyone is known and has experience of field work. Questions can be raised, analysed, discussed and perhaps answered during an interplay of personal relationships. A good operator allows each student the chance to interact with him up to a limit of about twenty participants. Everyone has the chance to raise questions. But unpredictable questions may

take much time, and it can be difficult to cover the course and to stick to a planned programme.

Much of your teaching will be done this way. The subject is known but the group needs an introduction. This is best done by a member but sometimes it may be advisable for you as group leader to begin. You will also be required to play the part of resource person by knowing your subject — although, if possible, you will get guests from the district hospital or HQ or elsewhere who will fulfil this role. The third role is recorder to note problems, issues, ideas, facts and decisions, on which to develop an oral or written statement of the proceedings.

You may have to play all three roles, particularly during the first few meetings.

You must also remember the following principles:

1. The members of the group must know each other well and it might take several meetings before members feel at ease with each other.
2. Outline the subject and reach agreement upon what will be discussed.
3. As the session continues ask members to contribute by analysing issues, summarising progress; explain points of doubt or clarify statements. Stick to the main issues.
4. Get to know the type of contribution the various members can make and use it when most suitable. Watch the group at work.
5. Keep a record of main problems, issues, ideas, etc.
6. Supply information or illustration as necessary but let people do their own thinking and exploration of ideas.
7. Interaction between members is important but do not allow pairs of members to engage in independent discussion with each other.
8. Summarise major points before going on with the subject — do so as far as possible in language used by the group.
9. Stress basic problems and questions.
10. Challenge statements you cannot accept and allow others to do so, but you are looking for integration rather than for differences; seek clarification and understanding, honesty of presentation and be aware of the difficulties caused by different uses of the same word or different words to describe the same thing.
11. Use periods of silence if necessary.
12. Use time wisely and be flexible about pace of progress.
13. As far as possible you are a guide; you take the group along at a variable pace; you know any dangers and tempting byways; you know your destination and the time you have to reach it without losing any of your party.

6.3.5. Training in Clinical Skills.

As part of other techniques or as a specific objective you may be concerned with helping the members of the health team to acquire clinical skills, e.g. techniques of obstetrical care or intravenous infusion.

Clinical skills through constant use become almost automatic. But they must be **learned correctly** at the beginning.

Clinical demonstrations and patient-linked teaching are valuable methods of learning and understanding. Such demonstrations must be prepared carefully. The situation created must make the learner think by posing problems requiring answers.

1. The situation demonstrated must involve mothers and children — over time a full range of situations and problems can be presented — record those given at each meeting to avoid repetition (9).
2. Remember it is a process of thought and clinical skills which you want the learner to acquire.
3. Constant individual teaching and personal example is the most important.

6.3.6. The Monthly Meeting for In-service Training.

Held at PHC in duty hours every four weeks. All health workers expected to attend.

Objectives:

1. To improve the standard of health care of mothers and children.
2. To assist each member of the health team to better work in his or her own role (tasks, skills, supervisory checks) and greater understanding of the work of the other members of the team.
3. To weld the workers into a team by specifying objectives and clarifying inter-relationships; discussion of referrals, delegation, communication and supervision.
4. To train new members of the health team.
5. To get a feed back of information from field staff relating to operational efficiency, Standing Orders, etc.
6. To pass on new information; relevant new techniques or advances in knowledge.
7. Review and consideration of practice policies.
8. Monthly issue of drugs and supplies.
9. To meet doctors and indigenous practitioners.
10. Social occasion to assist group friendship.

Organisation of Meeting.

By the medical officer, senior FH Assistant (LHV) or the district public health nurse. Systematic presentation of the range of activities; presentation and discussion of problems (9). Sufficient advance notice is given to allow some sessions to be prepared, yet time is allowed for current problems of practice or of clinical interest. Everyone must take part and contribute in their own fields.

Meetings held at PHC or subcentres varying with subject and method of presentation.

Lectures, discussions, case presentations, role play, demonstrations can all be used. The scene and premises must be prepared carefully and transport organised. This is important for success. The doctors are chiefly responsible yet all members of the health team must take part from time to time. Sometimes speakers might come from other centres or hospitals, and all members of the field staff should be encouraged to present cases and discuss.

6.3.7. The Demonstration.

May be used as a part of a teaching session or may be a session in itself.

It may show a particular technique or the function of a piece of equipment or an aspect of care of patients, individuals and/or community.

Organisation of Demonstration.

1. Plan the content.
2. Decide on length of time.
3. Select suitable time and place.
4. Begin on time. Finish on time.
5. If a patient or a family is involved obtain their permission.
6. If necessary rehearse the class before giving the demonstration.
7. Assemble the equipment required.
8. Arrange the group for visual effectiveness.
9. Speak without notes, refer only if necessary.
10. Display equipment while introducing the session and allow audience to ask any questions.
11. Show the steps of whatever is being demonstrated so that the group members see you follow the techniques as they should be practised. (Details are learned best by seeing them).
12. Summarise the session.
13. During your home and subcentre visits note if the health workers or mothers do what has been taught.
14. Seek the help of FH Assistants and ensure follow-up.
15. Get 'feed back'; consider 'follow-up'.

6.3.8. The Use of the Blackboard.

The proper use of display materials and illustrations helps the learner to understand and remember ideas and concepts, to focus attention and to reinforce auditory and visual stimuli.

The most usual way of doing this is with a blackboard and chalk. With good technique it is an effective teaching tool.

It fixes attention only when it is in active use by the speaker. The blackboard should not be used simply to give information unless it is hidden until the moment of use. Information is better duplicated and distributed.

The blackboard is best used to convey and build-up ideas step by step in the form of diagrams which relate the various parts of the subject. It must be used carefully and thoughtfully. Write or print so that all the group can read easily. Make sure the board can be seen and does not reflect. Write on the downstroke of the chalk: white or yellow give best visibility. Write straight: **print headings** and build up concepts. Do not abbreviate names etc. Use diagrams which can be built-up whilst speaking (they must be planned and practised beforehand) but are simple in construction. Keep the board free and ready for use. Do not speak with your back to the class. At the end of a class the board can contain the main headings or facts which can be useful to any class member who wishes to go over the material.

6.3.9. The Use of the Slide Projector.

The more mechanical the aid the more important is the need for careful maintenance. The physical requirements must be carefully considered, i.e. the slide projector must be able to be used under the prevailing climatic conditions.

1. The type of projector and the focal length of the lens must be such that the size of image produced is suitable for the dimensions of the room. The information on the slide must be legible from the part of the room where the farthest member of the audience is sitting.
2. The projector, lens, switches, plugs, adaptors, etc., must be kept in working order and tested before each class.
3. Design slides with a proper relationship between the area available and amount of material, words and figures to be included. All must be readable from the back of the audience and correctly spaced within the slide. The meaning must be evident at a glance. Only a minimum of words should appear.
4. Except for 'white' on black background the room needs to be dimmed and for colour slides darkened. Darkness and reasonable ventilation are often difficult to achieve simultaneously.
5. Some slides of 35mm film need to be mounted in glass or treated as a protection against the growth of fungi.
6. Apart from design of slides there is a technique in their use. Most speakers use too many. Major use is to focus attention on particular points or ideas, tables from books rarely reproduce as satisfactory slides. Audience must always be given time to appreciate the significance of the information the slide contains.

6.3.10. The Overhead Projector.

The use of the overhead projector is becoming more common. It has two major advantages; it can be used in a light room and slides are not required. Light from a source in the apparatus passes through a prepared transparent sheet. It is then reflected and focused on a screen or a white wall. The transparency can be prepared beforehand or printed at the time as in using a blackboard. Washed Xrays, polythene or acetate sheeting can be used, printing is best done with a spirit based felt pen for permanent records and water-based ink for the sheets which will be washed and used again.

Steps in sequence are:

1. Have the projector in working order.
2. Check projector before use.
3. Have transparencies in stock.
4. Use transparencies to emphasise important points.
5. Underline headings.
6. Write legibly or print on transparencies.
7. Do not use abbreviations other than standard ones.
8. Use diagrams as for blackboard.
9. Use pointer as in case of blackboard.
10. Keep projector ready for subsequent use.

Overhead projector is an effective aid. It is easy to handle but proper maintenance is essential.

6.3.11. The Flannelgraph.

This visual aid depends upon materials sticking to each other.

The flannelgraph, with careful use, is a most effective way to convey facts by pictures or diagrams. It works because some rough surfaced fabrics cling to each other if they are pressed lightly together. It consists of two parts, a background stretched over a blackboard or some other solid surface which is firm, and material cut into pictures, drawings, symbols, words or figures backed by rough material which will stick with a slight pressure. Sets may be bought or made.

Information and lists of material can be obtained from:-

Director, Central Health Education Bureau, Kotla Road, New Delhi (and 10.7).

If you are making sets the following materials are effective as background cloths:

Flannelette.

Winceyette (cotton and wool).

Old woollen blanketing.

Rough homespun cloths, e.g. khadi.

Whatever is used lightly brush the surface with a stiff brush.

The size of the backcloth depends upon the size of the room and audience. One metre square is enough for the ordinary classroom. The test is that you have enough space to set out the data you wish to use and that it can be seen and understood by all the audience.

The background cloth can be mounted permanently on a rigid frame or if it needs to be transported on a folding board; alternatively it can be stretched by tapes sewn in the corners and tied to the frame of a bed or table.

Materials for display can be obtained from magazines or newspapers. Words and figures can be stencilled or drawn on paper: ready-made cut-out illustrations may be purchased.

The material to be displayed must be backed so that it sticks to the surface of the backcloth. Cut-outs should be flat and rigid. Stick or staple them to light cardboard before applying the adhesive backing. Use sandpaper in strips sufficient to hold the figure in place or rough cloth or flannel over the whole of the cut-out as adhesive backing.

A Flannelgraph with mobile changeable pictures or symbols will hold attention better than a wall chart. Flexible and versatile in use, the audience can participate as the speaker develops the subject. Cut-outs must be easily seen with drawings simple, bold, in bright clear colours which stand out against the background cloth. Lettering must be clear, stencilled if possible.

In building up your story remember perspective and size. Plan your communication carefully with your illustrations and text reinforcing your spoken word as simply as possible. Plan and practise your communication knowing the order in which the parts will be used and precisely how they will be placed.

Relate words and the placing of material, remove all parts which have no place in the final picture as you finish talking about them.

Store carefully, do not bend cut-outs, keep in folders or large envelopes.

Section 6.4. MANAGEMENT AND ORGANISATION

6.4.1. General techniques.

You will see the need to be a good manager as soon as you begin to work in the Community Development Block. Management and organisation are closely related and the effective working of a primary health team depends upon these aspects of the medical officer's job. The health team in the Community Block is a different organisation from the clinical team in hospital. The members are more isolated in the performance of their work and each needs to know the work of the other members; the Block health team must rely upon individual discipline and mutual trust that work will be done; you must have a method of monitoring and supervising all the work of the team, a method which is both regulatory and educational. Work must be evaluated and this is not possible without a knowledge of and a way of measuring indices of health trends in the people of the Block (3.4.2 and 3.5.1).

Management is arrival at decision after consultation and then getting the members of the team to work with you towards the objective.

Decision requires the identification of objectives immediate and deferred: managerial skills involve the use of resources, manpower, time, supplies, equipment and money (7.1).

The importance of the use of your own time is emphasised in Chapter 7; you must be equally concerned how other members of the health team use theirs and the same type of analysis can greatly assist the proper use of resources.

You must cultivate knowledge and understanding of the causes of work satisfaction and dissatisfaction of members of staff — achievement, recognition, interest, responsibility, advancement, contributing to the former and lack of direction and policy, lack of supervision, poor personal relationships with other members, poor pay and poor working conditions being influences causing the latter.

Each worker needs to know his skill and ability are properly used, he needs respect, appreciation and a feeling of security.

As manager you must be able to do or to have done at some time any task you need to ask of others.

You need good communications and quick information and should always know what is happening throughout the Block.

6.4.2. Techniques of base line survey.

6.4.2.1. Required data.

Organisation, management, supervision and assessment of the work of the health team must be based upon facts relating to the behaviour of the persons you look after. Before you can engage upon any of these activities effectively you need to have the basic data relating to each unit of population. In each subcentre area there are a number of villages, about 12 in the 'average' Block. But the functional division of population is that served by each worker.

1. FHW in the intensive area of each subcentre, FHW in the area of the PHC.
2. MHW in half the subcentre area (intensive and twilight areas).
3. FHA in the subcentre area.

All these workers require to know at any time within their areas:

1. Number of families, where they live, family composition and age — these are all listed in family folders or registers.
2. Number of women 15–44 years.
3. Number of women pregnant.
4. Number of children aged 0–5 years and where they live.
5. Places and numbers of births and deaths.

These data are all required under the MPW scheme and also:

6. Register of eligible couples.
7. House register and identification: either as in the National Malaria registration or other programme or your own index.

The Male Health Workers and Assistants are responsible for the collection of data and the information must be passed on to the FHW and FHA. You must be able to assess the accuracy of the information for it forms the basic material on which the team will work.

6.4.2.2. Making a survey.

In areas where a survey has not been done, you must organise one.

1. You must contact village leaders — best through Male Health Assistants.
2. Explain the object of the survey, the method to be used and the questions which will be asked.
3. Discuss what help they will give you.
4. The most suitable time will vary from place to place and possibly at different seasons of the year.

As a guide a family usually numbers 5–7.

Birth rate 35–40 per 1000 population.

Pregnant mothers about 1½ times births.

Children 0–5 years 12–17 per cent of population.

Eligible couples 15–17 per cent of population.

Base Line Survey.

Objectives:

To ensure coverage of population.

To enable planning.

To collect demographic and social data.

To ascertain communications and transport throughout the Block.

The survey can only be accomplished area by area, taking in succession the villages in each subcentre area and distinguishing between intensive and twilight areas. Information is collected by house to house visiting and the completion of family registers or folders whichever is required in your Block

Each village may take two weeks or more, but at the end you will have the factual information required for organisation and monitoring.

6.4.2.2

6.4.2.3

6.4.2.4

The data can be collected under various heads.

One grouping could be:

1. Location of houses, schools, wells, water points.
2. In each village area: number of persons, ages and sex in each family dwelling.
3. Social data, religion, sect, caste, occupations.
4. Economic as far as possible.
5. Lines of communication and transport.
6. Methods of communication, indigenous, modern.
7. Health data:
 - Nutritional status.
 - Eligible couples, numbers and those using FP methods.
 - Immunization states.
 - Existing services, clinics, visits etc.
 - Environmental sanitation, water supply, excreta disposal, sullage and refuse disposal.

The Health data can be compiled into Family Registers (7.5).

Each village should be mapped (even roughly), houses of Sarpanch, woman's panch, dais, Chowkidar, indigenous practitioners noted. Depot holders of conventional contraceptives. Each house should be numbered following the National Malaria Eradication Programme.

6.4.2.3. Surveillance of pregnancy (3.4.3).

1. From the returns of the survey pregnancies are entered in the maternity register.
2. In your visits to subcentres and in your discussions with FHW's you must oversee the progress and outcome of each pregnancy — this is essential to reduce the maternal and child morbidity and mortality.
 - (1) You must ascertain if the mother is getting ante-natal care.
 - (2) Immunize against tetanus.
 - (3) Make sure delivery occurs in the best place.
 - (4) Make sure mother is seen in the post-natal period.

At the end of each month each FHW for her own intensive area must make a summary as follows:

Pregnant mothers brought forward from previous month	A
New pregnancies during current month	B
'Incoming' mothers during month	C
Mothers confined (or aborted etc.) in current month	D
'Outgoing' pregnancies in month	E

Balance: $(A+B+C) - (D+E)$ = current pregnancies in area.

Check deliveries expected in next three months and concentrate on them.

6.4.2.4. Supervision of children 0—5 years.

Once the survey has been done the numbers and ages of children are known. The numbers change with births, deaths and time.

You know where they are: you try to establish a system of Under fives clinics and record the attendances (names and numbers); you then know which children attend.

The FHW's in their rounds in the intensive areas must also meet and keep children under surveillance. Priorities must be nutritional standards, weighing, arm circumferences, immunizations, all planned work and all team work.

6.4.3. Delegation (4.3).

Delegation is the process of entrusting other workers to act in roles for which you are ultimately responsible — it requires both education and supervision. Effective delegation requires good communication. Thus you must

1. Write detailed instructions (8.3 — examples of Standing Orders).
2. Set out sequence in which the health workers should make decisions and perform actions.
3. Be aware of the response and the nature of any difficulties.
4. Have the ability to carry out necessary checks.
5. Trust other workers, give praise, discuss problems.
6. Retain your full share of responsibility.

Delegation of part of your clinical role may not come easily for you might think it takes away part of your job satisfaction. But it increases the health care available to the Community and that is of major importance.

Having trained your health workers so that they can undertake the tasks delegated to them and having made sure you can meet the six points set out above, you must, once delegation is working, be sensitive to five needs of your co-workers carrying out the delegated tasks. They think but might not put into words:

1. Tell me clearly and make me understand what I am to do.
2. Give me a real chance to do it.
3. Tell me how I am getting on.
4. Help me when I need it.
5. Give some recognition when I have done my tasks well.

Delegation, supervision and monitoring are all related processes. They are also continuous processes. The delegated functions in MCH have been detailed in 4.4 and all must be monitored.

Curative care of women and children begins with initial screening of all patients by the health workers. Patients are referred in accordance with Standing Orders and with specifically designated conditions (8.3).

With the exception of the people in the Primary Health Centre village and its immediate surrounding area the population will be in the intensive or twilight areas of the subcentres. The Medical Officer's supervisory tasks are therefore mainly discharged at subcentre level. The corresponding tasks applying to Primary Centre level practice should be performed by the senior medical officer.

6.4.4. Supervision — an essential activity.

Supervision is a process by which an individual or a group is helped to maintain and improve a standard of performance. To give effective supervision, performance must be evaluated.

Continued training and supervision of multipurpose workers (FHW) is essential to maintain the standard of MCH services rendered to the Community. The multipurpose workers (FHW's, FH Assistants) are key figures in the delivery of services. They deliver MCH services and refer complicated cases to you.

In supervision you have three main objectives:

Support — Supervision — Education.

The first is to assist the multipurpose workers (FHW's) in referrals and other aspects of their work. The second is to help them maintain the quality of the MCH services, update their knowledge, improve their skills, correct their defects and to meet their needs in terms of service requirements. The third is to keep them up-to-date with recent trends and developments in all aspects of their work.

How to supervise:

Your supervision is mostly indirect, the direct supervision of the multipurpose workers (FHW's) being undertaken by the Female Health Assistants (PHN/LHV). Built-in supervisory checks are essential. You must have a regular programme of items for supervision per month. You must plan to visit all subcentres each month, so that the health delivery work and the performance of the FHW's can be directly supervised (3.4). Cross supervisory checks can be made during weekly communications with the PHN and FH Assistants.

Items to be supervised will include:

1. Check on FHW's performance:
 - a. The FHW's work schedule.
 - b. The record of home deliveries and deliveries in the subcentre and area.
 - c. Home care rendered by the FHW's — on the basis of home visits — how many pregnant women were seen during the week.
 - d. Screening of 'high risk' mothers.
 - e. 'High risk' children and referral to doctors.
 - f. Immunization Programme — mothers and children.
 - g. Distribution of drugs.
 - h. Nature of problems identified and brought up for discussion with the doctor and PHN. and/or FHW (ANM)
 - i. Involvement of local people.
 - j. Demonstration of communication skills.
 - k. Assessment of the influence of the FHW (ANM) in the Community.
 - l. Acceptance of the FHW (ANM) in the Community.
2. Check on Records and Statistics:
 - a. Records on vital statistics, deaths and births in area.
 - b. Check and cross checks on ante-natal and post-natal; infant, toddler and family planning registers in terms of eligible populations in the subcentre and Health Centre areas (6.4.2.1 — 6.4.2.3).
 - c. Family Planning Services—
 - Active users.
 - Number who have undergone permanent methods of sterilisation.
 - On the register but not regular users — reasons for irregular use.

6.4.5. Monitoring

Definition: The intermittent checking of parts of a working system to ascertain if the positions or parts are functioning as intended.

All delegated MCH routines must be monitored — you are responsible for the overall control of your four subcentre areas.

Random sampling or sample checking of clinic cards, family folders, records of perinatal deaths, labour and post labour records, ante-natal registers, school inspection registers, etc., will indicate if sufficient attention is being paid to:

1. Proper use of family planning entry points and opportunities.
2. Ante-natal identification and referral of 'high risk' cases, recognition of anaemia, immunization of mothers with tetanus toxoid.
3. Intranatal care and recognition of danger signals for referral.
4. Post-natal visits — birth weights, neo-natal care and use of referral indications.
5. Three-monthly interconceptional visiting.
6. Vaccination, immunization, weighing of infants and children, 'under fives' with the incidence of malnutrition (5.2.2–5).

The following information will require evaluation from sources other than service records.

Coverage of ante-natal cases and deliveries in:

1. The population (of subcentre or Development Block).
2. Immunization states.
3. Incidence of perinatal deaths in unattended patients.
4. Completeness of eligible women and children's register.
5. Registration of vital events.

The extent and utilisation of the services as a whole can be gauged only by comparing the records from time to time with vital events registered in the 'thana' and by questioning the village Chowkidars, school teachers, dais, woman's Panch, etc.

6.4.6. Formulation of Standing Orders (8.3).

1. Assess:
 - a. Level of knowledge of health workers.
 - b. Health workers understanding of needs.
 - c. Disease trends in the Community Block
2. List objectives for writing.
3. Plan sequences.
4. Determine areas of emphasis.
5. Orders may be grouped, e.g.
 - a. Prevalent disease patterns.
 - b. Medical or surgical conditions related to body systems or states (e.g. pregnancy).
 - c. Categories of consumers of health services:
 - (1) Newborn and first year.
 - (2) Children 1–5 years.

- (3) Pregnancy and puerperium.
- (4) Lactation.
- (5) School children.
- (6) Adults.

d. In terms of medicaments:

- (1) Name of drug.
- (2) Indications for use.
- (3) Dosage, age and duration.
- (4) Special instructions.

e. When to refer.

6. A standing instruction regarding conditions requiring immediate referral, after 24 hours, after 48 hours, or after a week, is useful.

6.4.7. Initial Immunization of a Block.

The objective is a complete initial immunization for all children done in two stages, a mass campaign and then a period of consolidation to catch those missed. When all have been immunized, work is then concentrated on children as they are born.

The first requirement is a village by village census (6.4.2.2). This should exist; but if not list children under ten years of age by name and age in each village.

Seek co-operation by explanation and education at village and Block level. All health workers must teach and talk about immunization. This stage may take a considerable time. First concentrate upon Gram Sevikas, Mukta Sevika and school teachers who in turn will inform the people.

Round I:	Children under 5	1st DT or under 2 DPT
	Children 5—10	Tet.Toxoid
	Exp. mothers	1st Tet.Toxoid
	and in two months	
Round II	Children under 5	BCG and 2nd DT or DPT
	Children 5—10	BCG and Tet. Toxoid
	Exp. mothers	2nd Tet.Toxoid

The time taken for immunizing will vary with the population.

Calculate basic logistics and plan to visit villages in sequence. Co-ordination between BCG team and Health Centre team essential. BCG team will provide own equipment and vaccine and are required only in second round.

Supplies of tetanus toxoid and DPT required on both occasions. If more than one team can operate simultaneously then neighbouring villages can be visited at the same time.

When Stage I has been completed lists of those immunized must be checked against the census role. Children and mothers who missed either or both of the previous visits should be approached again and as many as possible immunized by members of the health team. The purpose should be to protect all with tetanus and BCG and at best 80 per cent against diphtheria and pertussis.

On-going programme.

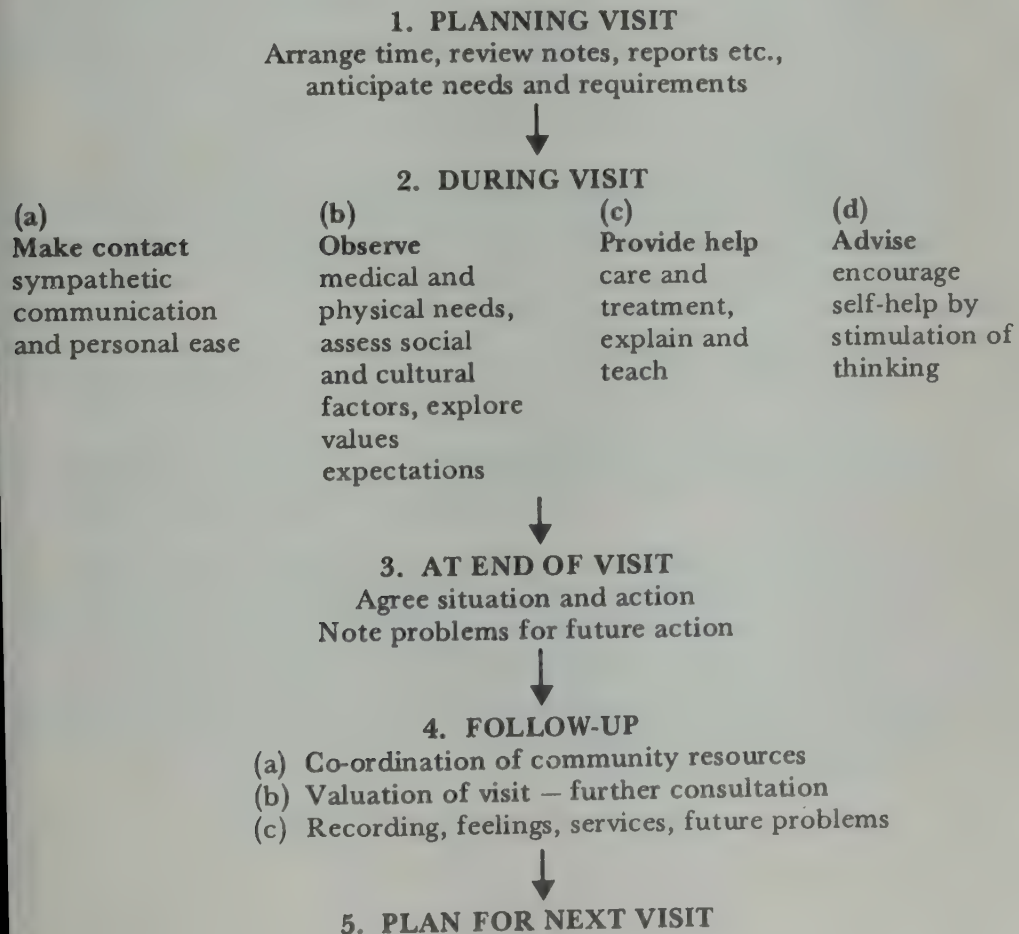
New births in the villages must be listed as the children are born, new arrivals in the villages must also be listed. Immunizations are done whenever an adequate number of children can be collected to utilise the ampoules of BCG vaccine.

6.4.8. Home Visits.

Home visiting brings the health team into the most personal and intimate contact with mothers and children. A major activity, the visit must be planned in purpose and in time. It is most efficient when carefully prepared, recorded and evaluated in retrospect. A technique of planning and conducting home visits is set out in Table 9.

Table 9

Flow Diagram for a Home Visit — Five stages:



6.4.9. Study of Deaths.

Study of deaths has considerable value for clinical educational and managerial purposes. The following comments apply to deaths of mothers, infants in the perinatal period and children under six years of age.

1. In the 'average' Community Block with 3,000 births a year, the annual number of deaths can be estimated very approximately; 15–20 mothers, 240 perinatal deaths, 300 infants one week to one year and 400 children between 1–6 years.
2. Deaths vary from year to year and place to place to place within the Block.
3. If deaths can merely be counted and dated this would be of value because they could be plotted to indicate time and place.
4. Information regarding occurrence is the first requirement, obtained from the village Chowkidar and if possible checked by information from health workers.
5. The reasons for collecting this data must be known, understood and agreed by local responsible people.

Once the counting mechanism is functioning make further enquiry into the circumstances preceding the death and the characteristics of the terminal illness. Do this carefully with agreement — the reasons are understanding and study in order to avoid similar deaths in the future. Do not suggest blame for those in the past.

Study of the circumstances is more important than attempting to reach a precise medical diagnosis.

Much epidemiological data should already be available in family folders or medical records and you can gradually develop schemes of enquiry for the various categories of mothers, infants and children setting the characteristics of the fatal illness within the social and economic characteristics of the family and their use or otherwise of health services.

This collection of simple **factual** data will increase your own understanding of the local situation and make you more aware of the circumstances leading to death.

The information can be used to study the operation of the health services and can also be used in the education of members of the health team during regular monthly sessions.

Finally a record such as this over years becomes a method of evaluation of any trends or changes in the health of the local population provided that numbers of deaths can be converted into rates over a given unit of time.

Studies of this type can also be related to different units of population depending upon the questions you attempt to answer; you may require information relating to the Community Block, to one or more subcentre areas or in some cases from only the PHC area.

CHAPTER 7

What you need to work with

Equipment, facilities and supplies at Primary Health Centre and Subcentres

Section 7.1. INTRODUCTION

Chapters 1–6 have concerned the people you work amongst, your role as a doctor and the knowledge and skills you must have to carry out that role. But you also need equipment, instruments, records, medicines and vaccines, and to be able to move about your area.

Clearly there are relationships between the number, training and the organisation of the health team; the equipment and facilities, supplies of medicines and vaccines, methods of transport and the extent of the work undertaken.

Each member of the team must understand the resources available and be careful and realistic in their use. Much can and must be done by adaptation and by local manufacture and improvisation to extend and supplement equipment provided in the schedules.

Since the supply of equipment and medicine is a matter for State Governments, there are likely to be regional variations. The equipment listed here is that recommended by the Central Government for use in Health Centres, by International agencies or by the panel of authors. The origin of each list is indicated. All the techniques and treatments described throughout the book can be performed with the equipment and drugs listed in this section.

If medical officers find deficiencies in drugs or items of equipment in their own Development Blocks application for its supply should be made to the State Directorate supported by a statement why the item is required.

Section 7.2. TIME, THE MOST VALUABLE RESOURCE

Throughout this handbook stress is laid upon the roles of the physician – yourself – and your function as organiser of the work capacity and time of other health workers and the users of the instruments, drugs and vehicles involved in the delivery of health services.

To do this most effectively you must first look to yourself as a health service resource. You must think how you can best use your time, to so plan your work and develop your own attitudes, skills and knowledge that you set an example and earn the leadership of the health team. This will not just happen automatically even if you work hard with your patients. Like anything else time must be measured and analysed to see how it is spent. Do you use it effectively and economically with an awareness of the priorities of different tasks. You can only know this if you have a simple record showing how it is spent as you go about your work. Details of a diary can be accumulated over weeks or months; different information can be sought during successive analyses. It cannot be left to memory later. When you have made such a record you will find that most of your time is taken up by the routine planned work (set out in Chapters 3 and 4) co-ordinated with the timetables of other health workers; some is absorbed in emergencies, some clinical, some managerial, which could not have

been foreseen. Some time still will remain for you to organise as you think necessary. For method of keeping a diary see Table 10.

After this first simple analysis of the way you spend your time and the activities you pursue, you then can go further. Look at parts of the day, and each of your activities in greater detail asking yourself whether the time is being wisely used and how it relates to other activities. In this way you can analyse how much is given in clinical work arranged or emergency, you can know the reasons people come to you, what you do for them and the result. Similarly you can analyse the time you spend in travel, in preparation for teaching and in teaching itself, in supervising the work of others, in planning the work of the health team, in record keeping and analysis, and in the correspondence and paper work which managerial and organisational tasks require. These can then be seen in relation to each other.

As your skill increases and as you become more experienced at leading a health team you should find that you can make more disposable time by further delegation of your duties as your team works together and each member becomes more experienced. This is a most important step and can come only as efficiency increases.

Time to look at new problems is often the most difficult thing to find. Yet it must be found. The most expert physician-managers are those who never seem to be in a hurry, who have time to listen to patients and staff yet use every available minute to good purpose.

This type of analysis can also be extended to other members of the health team so that slowly the activities of the whole team can be analysed.

Table 10 ANALYSIS OF DOCTOR'S DAY IN P.H.C. (example not actual).

TIME BEGINNING EACH ACTIVITY	SERVICE DUTIES					TEACHING										REMARKS
	In Ward	In O.P.	Ante-natal	< 5yr Clinic	Elsewhere	Staff	Others	Writing letters	Discuss	Travel	Break	Indents	Administration	Reading	Emergency	
7.30 am																Disc. FHW & FHA Patient care Morning consultations and clinic
7.45	✓					✓			✓							
9.00		✓	✓													
12.00 noon				✓												
12.30 pm			✓												✓	Fractured femur (Emergency) Lunch and break Correspondence Prep. Indents & returns Tea
1.15											✓					
2.30								✓								
3.30												✓				
4.00																O.P. care Patient care in ward Scald in O.P. (Emergency)
4.45		✓									✓					
5.15	✓															
6.30																
7.00 pm														✓		To home
Totals (hours)	2¼	3¾		½							1¾		¾		1¼	

Section 7.3. EQUIPMENT AND INSTRUMENTS.

7.3.1. At the Primary Health Centre.

Supplies of equipment are determined by each State Government. This handbook is written for the 'average' Community Block. The equipment recommended (various sources) is listed in Table 11; the major list being that of the Government of India which is given room by room, consulting room, laboratory, dispensary, surgical and labour rooms, ward and Family Planning Clinics. Laboratory and dispensary will be looked after by the laboratory technician and the dispenser — both very important constituent parts of the health organisation.

The equipment of the consulting room can be deployed as required for the work of various clinics but it must be remembered that very little equipment is required for clinics such as the 'Under fives' which nevertheless play an extremely important role in child care (Table 12).

Some items of listed equipment are expendable and will be renewed as necessary.

A maternity bag must always be packed and ready for use and one should be carried by whichever doctor is working outside the PHC.

School health is organised from the PHC (4.1.4) and school sessions require items of equipment. The furniture can usually be obtained at the school and the other items can be carried in a bag (Table 13).

Table 11

**List of recommended equipment for a Primary Health Centre
(Government of India).**

Final List determined in each State Health Department

CONSULTATIONS & DIAGNOSIS

Medical Officer's Consulting Room.

1. Examination table (metal)	1
2. Instrument tables (metal)	2
3. Scales adult, with height stand	1
4. Scales infant (see Table 12)	1
5. Steriliser, small instrument, stainless steel 35 x 12.5 x 10cm for use over kerosene or charcoal stove	1
6. Refrigerator, kerosene operated, approx. 0.14 cubic metre (5 cu.ft.) or similar electric	1
7. Eye charts — Snellen, E type	2
8. Haemoglobin scales, Talquist (expendable)	2
9. Stethoscope	1
10. Percussion hammer, hard rubber	1
11. Sphygmomanometer	1
12. Oto-ophthalmic set	1
13. Pelvimeter	1
14. Tongue depressor, metal, set of 3, varied sizes	1
15. Speculum — vaginal small bi-valve	1
16. Speculum — nasal, stainless steel	1
17. Syringes, hypodermic 2ml	2
18. Syringes, hypodermic 10ml	1
19. Syringes, ear — metal	1
20. Needles, hypodermic 24g x 5cm (2'')	6
21. Needles, hypodermic 22g x 2.5cm (1'')	6
] expendable	
22. Thermometers clinical, mouth	2
23. Mirror mouth	1
24. Torch electric	2
25. Bowls	2
26. Tray — Kidney shape	1
27. Jars	2
28. Bucket	1
29. Tourniquet	1
30. Tape, Measuring	1

LABORATORY

1. Microscope monocular, mechanical stage, optics for magnifications low and high power	1
2. Urinometer	1
3. Haemoglobinometer, Sahli	1
4. Haemocytometer	1
5. Centrifuge, hand operated, 2 tube type	1
6. Centrifuge tubes	1
7. Clini-test, laboratory type (for testing sugar in urine)	1

8. Test-tubes 15cm (6" x 1") (expendable)	2 doz.
9. Test-tube clamps	3
10. Microscope slides (expendable)	2 doz.
11. Bottles, glass stoppered (for lab. chemicals) 250ml (8oz) size	4
12. Bottles, dropper type, 50ml (2oz)	4
13. Bottles, Urine specimen	1 doz.
14. Test-tube rack, 6 place, white enamel	1
15. Test-tube brush	2
16. Burner, alcohol, 100ml (4oz)	1
17. Burner wicks for above	12
18. Spirit lamps	3
19. Flask glass conical	6
20. Glass rods	6
21. Funnels, pyrex glass	2
22. Steriliser, instrument, stainless steel, 35 x 12.5 x 10cm (14" x 5" x 4")	1
23. Sharpening stone	1
24. Bowl solution, stainless steel 15cm (6")	2
25. Stove primus	1

DISPENSARY

1. Steriliser, white enamel 45 x 20 x 12.5cm (18" x 8" x 5") use over kerosene or charcoal stove	1
2. Graduated measure glass 150ml (6oz)	2
3. Graduated measure glass 250ml (8oz)	2
4. Graduated measure stainless steel 500ml (1pt)	1
5. Funnels, pyrex glass varied sizes	3
6. Bottle brushes	2
7. Funnel, stainless steel	1
8. Slab ointment, graduated 20cm (8") size	1
9. Stirring rods, glass	4
10. Spoons 25cm (10")	2
11. Scales, dispensing, pharmacist, with metric weights etc. complete	1
12. Pestle and mortar, standard size	1
13. Funnel, pyrex glass 10cm	2
14. Funnel, stainless steel 10cm	2
15. Spatula for mixing ointments and powders	1
16. Medication bottles, glass stoppered wide mouthed (32cm)	8
17. Soap dish, stainless steel	1
18. Receptacle waste steel removable basket, step on	2
19. Mini-measure, glass 25ml (1oz) size	3
20. Scissors ordinary	1

SURGICAL AND LABOUR ROOMS

1. Dental extraction forceps, set of 3 stainless steel varied type and size	1
2. Mirror, head 7.5cm (3") diam. glass with head band	1
*3. Forceps, haemostatic straight, stainless steel	3

*4. Forceps, haemostatic curved, stainless steel	3
*5. Forceps, obstetric	1 set
6. Forceps, sponge, stainless steel	2
7. Forceps, tongue, stainless steel	2
*8. Forceps, tissue	2
9. Trays, kidney shape	2
10. Tray instrument, stainless steel	2
11. Rubber sheet	4 yds
12. Forceps, volsella, straight, stainless steel	2
13. Forceps, dressings, stainless steel	2
*14. Knives, operating, stainless steel	2
15. Scissors, bandage, stainless steel	2
16. Scissors, gauze, stainless steel	1
*17. Scissors, surgical, stainless steel	2
*18. Speculum, vaginal bi-valve, medium, stainless steel	1
*19. Retractors, vaginal 7.5cm (3''), stainless steel	2
*20. Needle holders, stainless steel	1
21. Syringes, hypodermic, 2ml	4
22. Syringes, hypodermic, 10ml	3
23. Needles, hypodermic 24g x 2.5cm (1'') (expendable)	4
24. Needles, hypodermic 22g (expendable)	3
25. Needles, infusion	3
26. Catheter urethral, male, metal size 16 & 18 French	2
27. Catheter, female, metal size 12 French	1
28. Catheter, rubber, 2 eye, solid tips, small, medium, large	3
29. Droppers, medium, bent	24
30. Eye wash glasses	2
31. Needles — 2 with 3/S circle needle, 2 with curve needle	4
32. Pencils, skin marking black	2
33. Mask, anaesthesia	1
34. Thermometers clinical, mouth	4
35. Thermometers, clinical, rectal	6
*36. Gloves surgical, size 8½	6
*37. Gloves surgical, size 7½] expendable	3
38. Sheeting plastic 1 metre (39'') wide	3
39. Finger cots, reinforced	4 doz.
40. Operation table (field type)	1
41. Enamel stools revolving	2
42. Instrument table, metal covered (medium size)	2
43. Pressure, steriliser with stove and drum, stainless steel type with hooks, gauges, etc.	1
44. Soap dish, stainless steel	1
45. Sponge bowl 10cm (4'') stainless steel	6
46. Tray, instrument, covered 15 x 7.5 x 5cm (6'' x 3'' x 2'') stainless steel	3
47. Jars, dressing, stainless steel	4
48. Bag, obstetrical for the doctor	1

*See Recommendations, Panel of Authors.

49. Aspirator, nasal, infant size	1
50. Pump Breast	1
51. Stove Primus	1
52. Bowls	4
53. Steriliser	1

WARD

1. Enema can, stainless steel with handle	1
2. Tubing for enema can	12ft
3. Nozzle hard rubber infant	2
4. Nozzle hard rubber adult	2
5. Syringe infant-enema bulb type	1
6. Sheeting plastic 1 metre (36") wide	3
7. Connection glass to fit enema-can	4
8. Clamp for enema-can nickel plated	2
9. Basin kidney, stainless steel 15cm (6")	6
10. Thermometers, clinical	12
11. Hot water bottles	2
12. Ice bags	2
13. Instrument table (medium size)	1

FAMILY PLANNING

1. Instrument tray with cover	1
2. Bowls of different sizes	4
3. Dressing drum	1
4. Steriliser, white enamel 45 x 20 x 12.5cm (18" x 8" x 5") use over kerosene or charcoal stove	1
5. Primus stove	1
6. Kidney trays	2
7. Forceps (Lucas)	1
8. Forceps (Dissecting)	2
9. Forceps (Ordinary)	2
10. Scissors (Straight)	1
11. Scissors (Curved)	1
12. Vaginal speculum (large and small)	2
13. Thermometers	2
14. Sauce Pan	1
15. Kettle (Brass)	1
16. Torch	1
17. Rubber gloves	3 pairs
18. Finger stalls	1 doz
19. Rubber models of female parts	1
20. Urine testing apparatus	1

In addition the following items are recommended by the panel of authors:

Forceps haemostatic straight, stainless steel	3
Forceps haemostatic curved, stainless steel	3
Forceps obstetric, Axis traction	1 set
Forceps, tissue	2

Knives, operating, stainless steel, BP blades	2
Scissors surgical, stainless steel, curved 22.5cm (9")	2
Scissors surgical, stainless steel, curved 15cm (6")	2
Scissors surgical, stainless steel, straight 15cm (6")	2
Needle holders, stainless steel	1
Gloves surgical sizes 6½, 7, 7½	6 pairs each
Craniotomy forceps	1
Anaesthesia apparatus, Cadet's	1
Dilatation and curettage set, complete	1
Speculum, Sim's, medium (1), large (1)	2
Intravenous sets, complete	4
Operation theatre lamp	1
Bins, to pack sterilised dressing linen	4
Suction evacuation equipment for MTP, complete kit	1
Intrauterine devices with insertors	
Vacuum extractor, Malmstrom's	1
Dropper Bottles, amber coloured (for Ether)	3
Oxygen cylinder, valve, regulator, stand, etc.	
Forceps, tongue holding	1
Forceps, tissue, Babcock's	2
Retractor, abdominal wall, self retaining	1
Retractor, Cats Paw	1
Probe, surgical, stainless steel, 15cm (6")	1

Table 12

Equipment recommended for Children and the Development of Under Fives Clinics (Panel of Authors)

Weighing scales, portable, one for each subcentre (Fig.22)	
Slings for infants (Fig.22), one for each set of scales	
Sphygmomanometer cuffs, 2.5cm (1")	
5cm (2")	
'Quac' stick charts printed	25 copies for PHC
Coloured arm strips (Shakir, Fig.23)	25 copies for PHC
Infantometer	
Syringe, tuberculin	3
Needles, short bevel No.25	1 doz
Needles, scalp vein No.22-24	1 doz
Feeding tubes, polythene for children	2 doz
Venesection set (6.2.6.5)	2
Laryngoscope, Infant's blade	1
Child's blade	1
Tube, Oesophageal, Ryle's, Child's	1
Tube, Endotracheal, Infant's	3
Child's	3
Suction apparatus, foot operated	1
Tracheotomy set with tubes	1
Oxygen cylinder	1
The ward must also have:	
Syringes, hypodermic, 2ml	
Syringes, hypodermic, 10ml	
Syringes, hypodermic, 20ml	
Rectangular trays with lids	1 set

Table 13

Requirements for Health Examinations at School

Equipment required:

Table and chair, cards, ink, paper.

Portable scales; measure for height; tape measure.

Eye chart. E shape and eye cover.

Spoons or spatulas; stethoscope, auriscope, Talquist papers, torch.,

Urine testing outfit.

Primus and saucepan or bowl for boiling syringe.

Hand washing material.

Visiting bag for treatment of minor ailments.

Health teaching material. Flannelgraph or display.

For care of school children — Section 4.1.4 (Fig.3).

7.3.2. At the Subcentre.

The 'average' Community Development Block has eight subcentres (3.3). The work of the FHW is described in 3.4: the subcentre is the base for her work and is visited regularly by the supervisors and the medical officers. The subcentre has its own equipment and each FHW her maternity kit and her general kit for use both in the subcentre and during her visiting (7.3.3).

The lists of equipment recommended for the subcentre, and the contents of midwifery and general kits for FHW recommended in the FHW's work manual are as follows: (Tables 14 and 15).

Table 14

Subcentre equipment (Recommended UNICEF).

Scale Bathroom DBL Scale (Avoirdupois and Metric)	1
Scale Infant Metric 16kg x 20g	1
Steriliser Instrument Boiling Type 32 x 17 x 10cm Fuel	1
Basin Kidney 825ml (28oz) Stainless steel	1
Irrigator 1.5 litre W/Side Spout, Stainless steel	1
Jar, Dressing W/Cover 2.13 litre, Stainless steel	1
Tray, Instrument/Dressing 31 x 19.5 x 6.3cm Covered Stainless steel	1
Connector Straight, Nylon for 6—8mm Int. Diam. Tubing	2
Sheeting, Plastic Clear Vinyl 91cm wide (1 metre)	1
Shield, Nipple Glass Shell, Rubber Nipple	5
Syringe, Rectal Infant 30ml, Rubber Bulb Hard Tip	1
Tube, Rectal Rubber 20 French 50cm, One Eye Funnel End	2
Tube, Rectal Rubber 22 French 50cm, One Eye Funnel End	1
Tubing, Latex Rubber for Irrigators, Length 142cm	1
Dropper, Medicine, Curved Tip	3
Brush, Hand, Surgeon's White, Nylon Bristles	2
Lancet, Straight Hagedorn Suture Needle 7.5cm long	3
Tape, Measure Vinyl Coated, FIEB Glass 150cm & 60	1
Urinary Test Set complete	1
Flashlight, Prefocussed 2—cell, Right Angled Head	1
Pelvimeter Collyer Graduated in inches and cm	1
Stethoscope Ford Type, Binaural complete	1
Forceps, Dressing 15cm, Spring Type, Stainless steel	1
Forceps, Haemostat Straight, 14cm Kelly Stainless steel	2
Forceps, Steriliser (Utility), 21cm Vaughn, Stainless steel	1
Scissors, Operating 14cm, Straight Sharp & Blunt, Stainless steel	2
Speculum, Vaginal Bi-valve, Medium Graves Stainless steel	1
Clamp Tubing Regulating, Hoffman 13 x 19mm	1

Table 15

List of Furniture required at Subcentre

Labour Table	1
Cot (Infant's)	1
Revolving Stool	2
Bench	1
Chairs	2
Table	1
Wash Basin Stand	1
Basin	1
Spirit Lamp	1
Test Tube Holders	1
Surgical Bin with Lid	2

7.3.3. Kits at the Subcentre.**7.3.3.1. FHW's Delivery Kit (Table 16)**

Notes (to be printed and displayed in Maternity Kit)

1. 'Never use the same plastic sheet (or mackintosh) for delivery as you do for giving enema.

Immediately you return from a delivery this kit must be cleaned, sterilised and repacked for use. Change lining, towels and cotton bags.

A minimum of three linings and towels and nine cotton bags are required for each kit.

Make sure the freshly sterilised kit is quite dry before repacking.

All cotton bags must have a flap to tuck in or a drawstring so that they can be closed.

2. Wash your hands in clean water and dry on a clean towel before preparation of swabs or dressings. Once the outer wrapping of the paper is broken keep stock dressings wrapped at all times in a clean towel.

Packs of different sizes must be prepared and grouped for specific purposes — e.g. separately for mother and baby.

3. Cord ligatures must be boiled for at least ten minutes before being placed in spirit in order to keep them sterile. Reboil unused ligatures every two weeks. Wash your hands well, using a brush for your nails and an antiseptic soap. Always dry your hands on a clean towel before proceeding with work. It is safer to work with dry hands than with wet.'

If UNICEF metal boxes are not available a bag can be made by local craftsmen suitable either for maternity kit or for home visiting.

Table 16

The Delivery Kit

UNICEF metal box with detachable lining with compartments to hold bottles etc.

1. Sterile cotton wool swabs
2. Sterile gauze dressings
3. Sterile perineal pads
4. Cord ligatures
5. 1 pair blunt scissors
6. 1 pair sponge holding forceps
7. 2 pairs artery forceps
8. 2 syringes (2 x 2ml) with hypodermic needles (20 gauge: 22 gauge: 23 gauge) in sterilising box
9. Ampoule file
10. Clinical thermometer (oral)
11. Foetoscope (Dr.Lee)
12. Mucus catheter (14 French) with suction bulb
13. Female rubber urethral catheter (12 French)
14. 1 pair rubber gloves
15. 2 bowls
16. 1 kidney tray
17. 1 enema can with tubing, connector, clamp and rectal tube
18. Plastic mackintosh (1 metre square)
19. Plastic apron
20. Soap dish with soap
21. Nail brush
22. Torch
23. Baby weighing spring scale
24. Containers for drugs:
 - a. 5 plastic bottles of suitable sizes with water-tight caps for liquid medicines
 - b. 1 amber coloured bottle with dropper cap
 - c. 3 plastic containers of suitable sizes for tablets
25. Medicines:
 - For internal use
 - a. Ergot tablets
 - b. Mist chloral hydrate
 - c. Injection Methyl ergometrine maleate (Methergin)
 - For external use
 - d. Antiseptic lotion
 - e. Liquid paraffin
 - f. Mercurochrome 2 per cent
 - g. Methylated spirit
 - h. Silver nitrate eye drops 1 per cent
 - i. White vaseline
 - j. Zinc boric dusting powder

7.3.3.2. General Work Kit for FHW.

In addition to the maternity kit which must always be ready for use the FHW requires a work kit for her routine visiting during the interconceptional cycles and for ante-natal care. The list of items recommended in the Manual for FHW is reprinted here. These also can be carried in metal boxes or bags can be made by local craftsmen.

All external applications must have a distinctive label with a **red cross** and be packed outside the lining with the soap dish and soap, the nail brush and the two plastic sheets.

The records, diary, health education materials, pencil, Talquist book, spare paper, etc., can be carried in a separate shoulder bag if desired.

To sterilise dressing packages needs 30 minutes under 10kg (25lb) pressure in a UNICEF pressure steriliser on a four burner stove.

All cotton bags must have a flap and button or a drawstring so that they can be properly closed and all items kept in cotton bags must be sterile.

Cord ligatures must be boiled for 15 minutes and placed in spirit: if not used reboil after 14 days.

Table 17

General Work Kit for FHW's

Contents as given in Manual for FHW.

(For medicaments to be carried by FHW and kept at subcentre, see 7.4.5.2.)

- | | | |
|--|--|---|
| <ol style="list-style-type: none"> 1. Manual for FHW. 2. Records (health cards and diary). 3. Health Education materials on MCH,
Family Planning and Nutrition. 4. Pencil. 5. Matches. 6. Microscope slides. 7. Slide box to hold 10 slides. 8. Cleaning cloth for slides. 9. Needles (Hagadorn) in spirit bottle. 10. Cotton wool — one small packet. 11. Gauze dressings. 12. Triangular bandage — 1. 13. Roller bandage 7.5–10cm (3–4") — 1. 14. Adhesive plaster. 15. Swab sticks. 16. Razor blade. 17. Safety pins. 18. Teaspoon (5ml) — 1. 19. Graduated medicine glass 30ml (1oz) — 1. 20. Medicine dropper. 21. Scissors, blunt ended — 1 pair. 22. Dissecting forceps non-toothed — 1 pair. 23. Forceps artery — 2 pair. 24. Soap dish with soap. | <div style="font-size: 4em; line-height: 1;">}</div> | <p>Separate shoulder bag
if desired</p> |
|--|--|---|

25. Nail brush — 1.
26. Nail clipper — 1.
27. Towel — 1.
28. Plastic sheet — 1.
29. Haemoglobin colour scale Talquist.
30. Clinical thermometer (a) oral — 1
(b) rectal — 2.
31. Arm circumference Shakir Strip.
32. Spirit lamp.
33. Wind shield for lamp.
34. Tape measure.
35. Contraceptives (a) Nirodh packets — 50
(b) Foam tablets — 1 tube
(c) Jelly tube with applicator — 3
(d) Oral contraceptive packets — 3
36. Test tubes — 2.
37. Test tube holder — 1.
38. Mucus catheter (16 Fr).
39. Female rubber urethral catheter (12 Fr).
40. Cord ligatures (sterile in a sterile container).
41. Plastic or cloth bags (20 x 15cm) — 4.
42. Containers for drugs
(a) 9 plastic bottles of suitable sizes with watertight caps for liquid medicines.
(b) 3 bottles with dropper caps (one amber coloured).
(c) 17 plastic containers of suitable sizes for tablets, powders and ointments.
43. Drugs according to list (7.4.5.2).
44. Kit bag: light yet strong with compartments, pockets and straps for carrying drugs, dressings, instruments, etc. Can be made by local craftsmen.

ADDITIONAL MATERIAL TO BE CARRIED WHEN NECESSARY

1. Syringes and needles.
(a) 2 syringes (5ml and 2ml) with hypodermic needles (1 packet of 23 gauge and 1 packet of 22 gauge) in sterilising box.
(b) 2 tuberculin syringes with hypodermic needles (26 gauge 1cm) in sterilising box.
2. Bifurcated needles in container.
3. Vaccines — (a) DT
(b) DPT
(c) Poliomyelitis
(d) BCG
(e) Tetanus toxoid
(f) TAB and
(g) Cholera
4. File for ampoules.
5. Mantoux ruler.
6. Vaccine carrier.
7. Thermos flask.
8. Needle sharpening stone.

7.3.3.3. Dais Delivery Kit.

When Dais have finished training (9.5) they are supplied with equipment and expendable dressings subject to good practice and notification of births.

Table 18.**Contents of Dais Maternity Kit.**

1. Metal carrying box (UNICEF Delivery bag with washable lining).
2. Scissors — blunt ended.
3. Bottle — screw top, wide mouth for cord ligatures.
4. Bottle — screw top, narrow mouth for Dettol.
5. Bottle — screw top, narrow mouth for dusting powder.
6. Dissecting forceps.
7. Soap dish.
8. Nail brush.
9. Hand towel.
10. Irrigation can — 750ml capacity.
11. Rubber tubing and stop cork.
12. Rubber sheeting — 2 pieces.
13. Dressing bowls (12.5cm) — 2.
14. Kidney dish (25cm).
15. Perineal pads and swabs.
16. Eye swabs.
17. Cord dressing.
18. Mackintosh.
19. Apron.

7.3.3.4. Training Kit for Dais.

Training and Government regulations of Dais is given in section 9.5. The basic kit is given in Table 18 and the requirements for teaching in Table 19.

Table 19**Equipment required for Dais Training.**

1. Obstetrical manikin and Foetal doll.
2. Model of newborn baby.
3. Model of female reproductive organs.
4. Birth atlas.
5. Dais kit.
6. Bowl.
7. Nail brushes.
8. Nail files.

7.4
7.4.1
7.4.2
7.4.3
7.4.4

Section 7.4 MEDICAMENTS, VACCINES AND REAGENTS

7.4.1. Introduction.

This section lists the medicinal substances of all types used in the care of mothers and children and included in this handbook. Details of medicines issued will vary from State to State but it is expected that those mentioned in this section or their equivalents, will be provided or can be obtained for use in a Community Development Block. Those recommended for use by the FHW and to be kept at a subcentre or in her nursing or maternity kit are listed separately (7.4.5.2) although supplies are obtained and accounted for in the same way.

7.4.2. Ordering and use of medicaments.

Medicines and vaccines are issued to you as medical officer against indents approved by the District Officer. The responsibility for their keeping and use is yours.

Your requisitions should comply with the requirements in your area and you must know the time and the procedure for their submission to the central store.

You must also read all circulars and keep yourself up to date concerning the preparation of indents for supplies and equipment.

When accepting supplies check everything as it is received. Control your own stock register and know how it is maintained. Do not leave details to an assistant or difficulties will arise.

Although issues are made regularly urgent additional supplies may be obtained on the production of an adequate supporting letter from a medical officer.

7.4.3. General rules for drug usage.

Use the smallest number of drugs possible.

Understand their use.

Have good reasons for all prescriptions.

Use common and simple but effective preparations.

Use shortest time for effective action.

Always consider expense and supply position.

Always explain use to patients and make sure this is understood and accepted.

Use simple and established antibiotics and chemotherapy.

Stock mixtures are useful and economical.

7.4.4. Notes on paediatric prescribing and dosage (Table 20)

The names of drugs given in this handbook are approved and most drugs are included in the National Formulary (1979). The doses, stated in metric terms, are intended for general guidance as the average dose regarded as suitable.

Dosage and frequency must be clearly explained or written; metric and avoirdupois and fluid volume equivalents are given in Table 23(b).

When prescribing for children dose and frequency and method of administration and the age of the child should be stated. Doses are usually given in age groups; up to one year, $\frac{1}{4}$ adult dose; 1–5 years, $\frac{1}{3}$ adult dose; 6–12 years, $\frac{1}{2}$ – $\frac{3}{4}$ adult dose; or follow Table 20.

Children differ from adults in their response to some drugs and infants from older children. Experience and caution are necessary. Differences are seen particularly in response to sedatives, Chloramphenicol, Sulphonamides and Vitamin K. These require careful dosage if used in infants. Dosages based on weight may be incorrect if the child's weight varies greatly from the mean for age.

Do not encourage mothers to put medicine in milk or feeding cups.

Health workers should counsel parents to take care with all medicines and keep them out of the reach of children.

Medicines for children should be kept as simple as possible; antibiotics should be used only when clear indications are present and then in adequate dosage.

Table 20

General Guide to Paediatric Dosage as a proportion of Adult Dose.
Use only when paediatric dosage is not known.

Year	Per cent of Adult Dose	Body weight not below	
		kg	lb
1 year	25%	10kg	22lb
1½ years	30%	11kg	25lb
3 years	33%	15kg	33lb
5 years	40%	18kg	40lb
7 years	50%	23kg	50lb
10 years	60%	30kg	66lb
11 years	70%	36kg	80lb
12 years	75%	40kg	88lb
14 years	80%	45kg	100lb
16 years	90%	54kg	120lb
20 years	100%	65kg	145lb

7.4.5
7.4.5.1

7.4.5. Medicaments, Vaccines, Laboratory Stains and Reagents.

Recommended for use in Community Development Block and for treatments described in this handbook.

7.4.5.1. At the Primary Health Centre.

The preparations listed are classified by pharmacological action on body systems as follows:-

- | | |
|---------------------------------|-----------------------------------|
| 1. Alimentary | 8. Metabolism |
| 2. Cardiovascular and diuretics | 9. Nutrition and Blood |
| 3. Respiratory | 10. Rheumatic diseases |
| 4. Allergic | 11. Ear, Nose and Throat |
| 5. Nervous | 12. Eye |
| 6. Genital | 13. Skin |
| 7. Infections | 14. Vaccines and related products |
| | 15. Stains and reagents |

Where applicable a commonly used approved name is placed after the pharmacopoeial name.

Read 7.4.4 carefully when considering the dose of any drug or medicine which you have not previously used or if you are in any doubt about the dose, see also Table 20.

Medicines are given by mouth unless indicated otherwise or inherent in the nature of the preparation e.g. ointments or liniments.

For most preparations the adult dose is followed by the usual paediatric dose for age groups under one year, one to 5 years and 6–12 years unless stated otherwise.

Where no paediatric dose is given the preparation is not commonly used for children: Paediatric preparations are given in children's doses only.

Preparations marked with an asterisk are not in the National Formulary.

Table 21

Medicaments recommended for Primary Health Centre.

For use in MCH care.

5ml = 1 teaspoon

15ml = 1 tablespoon

BD = twice daily

TDS = three times daily (8 hourly)

QDS = four times daily (6 hourly)

1. ALIMENTARY SYSTEM

Antacids

Mist. Magn. Hydroxide (Milk of Magnesia)

Magn. Hyd. 7 to 8.5 per cent

Dose: Adult 1–4ml TDS; infant of one year up to 0.2ml.

Mist. Sodium Bicarbonate mixture (Paed.) (Mist. Carminative)

Dose: 5–10ml TDS

Mixt. Alumin. Hyd. (Aludrox)

Dose: Adult 5ml 4 hourly. Children $\frac{1}{4}$ – $\frac{1}{2}$ strength.

Antispasmodics

Atropine sulphate (Inj)

Ampoules 1mg in 1ml

Dose: Adult to 2mg. Children 250–800 micrograms.

Tab Belladonna and Phenobarb

12.5mg dry ext, 25mg

Dose: Adult 1 tab

Mist. Belladonna (Paed.)

Dose: Up to 1 year 5ml, 1–5 years 10ml.

Laxatives

Tab Senna

Dose: Adult 1–4

Mist. Magn. Sulph (Mist Alba)

4g Magn. Sulph

Dose: Adult 10ml

Liquid Paraffin and Magn. Hydrox. Emulsion (Paed.) (Agarol, Petrolagar)

Dose: 5ml a year of age to maximum 20ml single dose.

Liquid Paraffin Emulsion (Paed.)

Dose: 8–30ml

Emetics

Syr. Ipecacuanha

Dose: Children 5ml in 20ml water as emetic.

Antiprotozoal

Enterovioform (Mexaform)

Dose: Adult 1 tab TDS

Antidiarrhoeals

Mist. Kaolin

Kaolin 2g in 15ml

Dose: Adult 15ml.

Mist. Kaolin and Pectin Suspension

Kaolin (light) 100mg and Pectin 60mg

Dose: Children 2.5–5ml, 2 or 3 times daily.

Mist. Kaolin Paed.

1g Kaolin

Dose: Children up to 1 year 5ml, 1–5 years 10ml.

Intestinal Parasites

Mepacrine (Atebrin)

100mg tab

Dose: Adult 100mg TDS for 5 days,

Children up to 2 years 50mg BD, 2–5 years 50mg TDS.

Tapeworms

Dichlorophen (Anthiphen)

500mg tab

Dose: Adult 70mg kg/wt divided 24 hours

Children 1–5 years 500mg–2g single dose

6–12 years 2–4g single dose

Give before food in morning without fasting.

Chlorsalicylamide (Niclosamide) (Yomesan)

500mg tab

Dose: Adult 1g foll. one hour 1 g

Children: Up to 1 year 0.25g, 1–5 years 0.5g

6–12 years 0.5–1g. Repeat after 1 hour

Tablets should be chewed before being swallowed.

Roundworms

Bephenium Granules (Alcopar)

5g sachet

Dose: Adult 5g in water single dose

Children up to 2 years 2.5g, 2–12 years 5g.

Threadworms

Piperazine Cit. Elixir

900mg in 5ml

Dose: 300mg Citrate per year to max. 2g. for seven days
before first meal of day.

Piperazine phosphate tabs (Antepar)

260 or 520 mg per tab.

Dose: 260mg Phosphate to max. 2g for seven days
before first meal of day

Hookworms

Bephenium Granules (Alcopar)

Dose: Child 1–2 years, 2.5g.
Over two years and adults 5g.
Single dose in a sweet drink.

2. CARDIOVASCULAR SYSTEM: DIURETIC

Hypotensives

Methyldopa (Aldomet)

125mg, 250mg, 500mg tab
Dose: Adult 500mg–3g daily

Pentolinium Ansolysen (Inj)

50mg in 10ml
Dose: Adult 1mg initial dose increased gradually according to need.

Reserpine (Serpasil Esidrex)

250mg tab
Dose: Adult 2–3 tabs daily.

Vasoconstriction

Adrenaline (Inj)

Amp. 0.5ml, 1ml (adrenaline 1:1000)
Dose: Adult 0.2ml–0.5ml
Children –1 year 0.05ml; –6 years 0.1–0.4ml; 6–12 years 0.5ml

Diuretic

Frusemide (Inj) (Lasix Inj)

Amp. 2ml 10mg per ml
Dose: Adult 10–20mg, Children 0.5–1.5mg kg/wt daily

Frusemide tab

40mg tab
Dose: Adult 40–120mg, Children 1–3mg/kg daily

Hydrochlorothiazide (Esidrex)

25mg
Dose: Adult 25–100mg (25–50mg maintenance)

Directions for use of Digitoxin and Digoxin refer to children under 12 years of age.

Digitoxin (Tab) 100mg

Dose for children 10mcg (10 micrograms) kg/day. Initial dose twice daily dose followed at two 12 hour intervals by daily dose divided 8 hourly.
Reduce dosage as control achieved.

Digoxin (Tab) 0.25mg (250 micrograms)

Dose: 0.025mg (25 micrograms) kg/day. Initial dosage twice daily dose, followed at two 12 hour intervals by daily dose; continue with daily dose divided 8 hourly. Reduce dosage as control achieved.

Digoxin Injection IP,

Ampoules 0.5mg (500micrograms) in 2ml

Dose: 0.025mg (25 micrograms) kg/day. Initial dosage twice daily dose, followed at two 12 hour intervals by daily dose; continue with daily dose divided 8 hourly. Reduce dosage as control achieved.

3. RESPIRATORY SYSTEM

Aminophylline

Aminophylline (Inj)

250mg in 10ml

Dose: Adult 250mg to 500mg slow Intravenous inj.

By mouth: Children —1 year 10–25mg, 1–5 years 25–50mg,

6–12 years 50–100mg.

Aminophylline Supp. 500mg

Dose: Adult 360mg, Children —1 year 12.5–25mg; 1–5 years 50–100mg;

6–12 years 100–200mg.

Codeine Linctus

15mg Cod. Phosphate

Dose: 5ml

*** Codeine Linctus Paed.**

Cod. Linct. 1ml. Syrup 5ml

Dose: 5–10ml

Codeine Compound Tablets

Each tablet contains 250mg Aspirin, 250mg Phenacetin and 8mg Codeine Phosphate

Dose: 1–2 tab

Codeine Phosphate Tablets: 30mg

Dose: Half tablet to 2 tabs

Ephedrine Hydrochloride Tablets

15 or 30mg tab

Dose: Adult 15–60mg

Children 1–5 years 15mg; 6–12 years 30mg.

Ammonia and Ipecacuanha (Mixt. Expect)

Ammon. Carb. 200mg, Tinc. Ipecac. 0.3ml in 15ml of mixture

Dose: Adult 15ml.

Ammonium Chloride Mixture

Ammonium Chloride 1g in 15ml

Adult dose: 15ml.

4. ALLERGIC REACTIONS

Antiemetic

Promethazine Hydrochloride (Avomine, Phenergan)

Dose: 5mg in 5ml (Elixir)

For travel sickness 30 minutes before a journey and then 12 hourly.

Children —1 year 2.5–5ml; 1–5 years 5–7.5ml

Mepyramine (Antisan)

Elixir 25mg in 5ml, Tabs 50mg

Dose: Children —5 years 12.5–25mg; 6–12 years 25–75mg, three times daily.

Meclozine (Ancolan)

25mg tab

Dose: Children 6–12 years 12.5mg 6 hourly.

Chlorpromazine (Largactil Inj)

Chlorpromazine Tablets

Amp 50mg in 2ml

10mg

Dose: Children —5 years 0.5–1mg/kg daily; 6–12 years 10–12.5mg three times daily

5. NERVOUS SYSTEM

Anticonvulsants

Phenobarbitone Elixir

15mg in 5ml

Dose: Adult 5–10ml, Children —5 years 5ml TDS to 10ml TDS

Phenobarbitone Sodium Injection

Amp 100mg in 1ml; 200mg in 2ml or 5ml

Dose: Adult 60–200mg

Children —1 year 30–60mg; 1–5 years 90mg; 6–12 years 120mg or 3–5mg/kg intramuscularly

Phenobarbitone Tablets

15, 30, 60, 100mg

Dose: Adult —600mg divided TDS

Children —2 years 10–15mg TDS; 2–5 years 15–30mg TDS;

6–12 years 30–125mg TDS

Phenytoin Sodium (Epanutin)

Capsules 50, 100mg

Dose: Adult 100–200mg TDS

Children —5 years 50mg once to three times, 6–12 years 50mg BD —100mg TDS

Injection

Vials 100mg + water 2ml for injection

***Mixture (Not in National Formulary)**

30mg in 5ml

Dose: —5 years 5ml BD — 10ml TDS

Tablets

30, 50, 100mg

Dose: Adult 50mg–200mg daily

Children —5 years 30mg BD — 50mg TDS; 6–12 years 50mg BD —100mg TDS

Diazepam (Valium)

Injection (in status epilepticus)

10mg in 2ml sol. propylene glycol

Dose: 1mg a year to 5 years given intramuscularly or slow intravenous, repeat not less than 4 hours

Tablets

2, 5, 10mg

Dose: Adults 5–30mg daily divided doses

Children QDS –1 year 50 micrograms per kg; 1–5 years 0.5mg;

6–12 years 1mg per kg

Paraldehyde injection

Amp 2, 5, 10ml. Keep in dark, 15–20°C

Dose: Children –1 year 1ml; 1–5 years 2–4ml; 6–12 years, 6ml.

Sedatives and Tranquillizers (see above and also)

Quinalbarbitone Tablets (Seconal)

100mg

Dose: Adult 100–200mg

Children –1 year 15–25mg; 1–5 years 25–50mg; 6–12 years

50–100mg

Amylobarbitone Sodium (Sodium Amytal)

30mg tab

Dose: Adult, Hypnotic 100–200mg; Sedative –600mg, divided doses

Children –1 year 15–20mg; 1–5 years 50–60mg; 6–12 years

60–120mg, divided doses

Pethidine Injection

DD

Amp 50mg in 1ml; 100mg in 2ml

Dose: Adult 25–100mg subcutaneous; 25–50mg intravenous

Children –1 year 1–2mg kg/wt; 1–5 years 12.5–25mg; 6–12 years

25–50mg; subcutaneous or intramuscular.

Pethidine Tablets

DD

50mg

Dose: Adult 50–100mg;

Children –1 year 1–2mg/kg; 1–5 years 12.5–25mg; 6–12 years

25–50mg

Morphine Sulphate Injection

DD

Amp 15mg in 1ml, 30mg in 2ml

Dose: Adult 10–20mg IM or subcutaneous

Children Intramuscular –1 month 150 micrograms kg/wt;

1 month–1 year 200micrograms kg/wt; 1–5 years 2.5–5mg;

6–12 years 5–10mg

Morphine and Atropine Injection

DD

Amp Morphine Sulphate 10mg Atropine 60 micrograms in 1ml

Dose: 0.5–1ml

Analgesics

Acetyl salicylic acid (Aspirin)

75mg, 300mg tabs

Dose: Adult 300mg—1g up to QDS

Children 65mg/kg in 24 hours

Tab. Aspirin Co.

Aspirin 225mg, Phenacetin 150mg and Caffeine 30mg

Dose: 1—2 tabs

Acetylsalicylic acid Tablets (soluble) (Tab Asp. Soluble)

Asp. 300mg

Dose: Adult 1—3 tabs QDS; Children 6—12 years 1 tab TDS

Aspirin Mixture (Paed.)

100mg in 5ml

Dose: 1—2 years 5ml up to TDS

Mist. Sod. Salicylate

600mg in 15ml

Dose: Adult 15ml TDS, Strong Mixt has twice amount Sod. Sal.

Hypnotics

Chloral Hydrate Mixture

1.3g in 15ml

Dose: Adult 5—20ml

Children 1—5 years 2.5—5ml; 6—12 years 5—10ml

Chloral Hydrate Mixture (Paed)

200mg in 5ml

Dose: —1 year 2.5—5ml

Sedatives and Tranquillizers

Paracetamol Syrup (Paed.) (Calmpore) (Calpol)

125mg in 5ml

Dose: 25—35mg kg/wt each 24 hours

Tablets

500mg

Dose: Adult 500mg—1g QDS; Children 6—12 years 250—500mg

Local Anaesthetics

Lignocaine (Xylocaine) Injection (Lidocaine)

Vials 30ml, 0.5 per cent, 1 per cent, 2 per cent

Lignocaine in water

Dose determined by prescriber

Lignocaine and Adrenaline Injection

Vials 30ml

Each vial 2 per cent w/v Lignocaine Hydrochloride and the equivalent of 1.00 per cent w/v of adrenaline solution

Ointment

5% Lignocaine in water base

Lignocaine (Xylocaine) continued

Gel

2% Lignocaine water miscible base. Skin or anal application.

Antidepressives (Neonatal resuscitation)

Nalorphine Injection (Lethidrone)

Amp. 10mg in 1ml

Dose: Newborn 0.25mg to 1mg into umbilical vein;

1–12 years 0.2mg kg/bw max 10mg.

Noradrenaline Acid Tart. Injection (Levophed)

Amp. 2mg in 2ml prepared immediately before use. 0.25–2.5ml per minute by intravenous injection.

Nikethamide Injection (Coramine)

Amp. 2ml, 25% w/v Nikethamide

Dose: 2–8ml subcutaneous. IM or IV injection.

Sodium Bicarbonate Injection

Amp. 7.5 per cent in water

Dose decided by physician according to needs of patient.

6. GENITAL SYSTEM

Oxytocin Injection (Syntocinon)

Amp. 5 units per ml, 2 units in 2ml

For use see text 5.1.3–5.1.10.

Methylethergometrine (Methergin)

Dose: Adult 0.2mg

Ergometrine Injection

Amp. 0.5mg in 1ml

Dose: 0.25–0.50mg subcutaneous or IM injection.

Ergometrine Tablets

0.125mg, 0.2mg, 0.25mg, 0.5mg

Female Hormones

Stilboestrol Tablets

0.1mg, 0.5mg, 1mg, 5mg

Dose: Menopausal 0.1-1mg daily;

Lactation suppression 5mg TDS for three days then 5mg daily for six days.

Progestogen and small dose oestrogen (not more 50 micrograms)

Dose: 21 day each cycle beginning on 5th day, various types.

Oestrogen cream

7. INFECTIONS

Antibacterials

Sulphadimidine Injection (Sulphamethazine)

1g in water, amp. 3ml intramuscular or intravenous, never intrathecal

Dose: Adult 1–2g; Children IV 6 hourly, 6 months–1 year 250mg–500mg;

1–5 years 500–750mg; 6–12 years 750–1000mg.

Sulphadimidine (Sulphamethazine) continued

Mixt. Paed.

500mg in 5ml

Dose: 6 months—1 year 2.5—5ml; 1—5 years 5—7.5ml 6 hourly

Tablets

500mg

Dose: Adult systemic infection, 3g, then 1.5g 6 hourly.

Urinary tract 2g then 4g daily.

Sulphadiazine tabs

500mg

Dose: Adult 3g first dose then 4g in 24 hours divided 6 hourly

Children 6—12 years 0.75—1g 6 hourly.

Triple—Sulpha (Sulphatriad M & B)

Dose: 4 tabs initially followed by 2 tabs 4—6 hourly

Sulphaguanidine

Dose: 8 tabs stat, tab 2—4 hourly 3 days.

Sulphasalazine tabs (Salazopyrin)

500mg tab

Dose: Adult 1g 4—6 times daily

Children 6—12 years 0.25—1g 3—6 times daily.

Phenoxymethyl penicillin (Penicillin V)

*Capsules, 125, 250mg

Dose: Adult 250mg 6 hourly;

Children 1—5 years 125mg; 6—12 years 250mg

*Elixir

62.5, 125mg or 250mg in 5ml

Dose: —1 year 62.5mg; 1—5 years 125mg; 6—12 years 250mg 6 hourly

*Mixture

Suspension oily vehicle

Dose: —1yr 62.5mg; 1—5 years 125mg; 6—12 years 250mg 6 hourly

Tablets

125, 250mg

Dose: Adult 0.5—1.5g daily divided

Children 1—5 years 125mg; 6—12 years 250mg 6 hourly

Benzylpenicillin Injection (Penicillin G)

Vials Benzylpenicillin 2,00,000, 5,00,000 + 10,00,000 units with water for injection

Dose: 2,50,000—10,00,000 units 2—4 times in 24 hours by intramuscular injection.

Procaine Benzyl Penicillin Injection

Vial 3,00,000 Procaine Penicillin per ml

Dose: Adult 3,00,000—9,00,000 units IM daily

Children —1 year 1,50,000 units, 1—5 years 3,00,000 units,

6—12 years 6,00,000 units.

Ampicillin (Penbritin)

Capsules

250mg

Dose: Adult 1—6g daily divided

Ampicillin (Penbritin) continued

Injection

Vials Amp. Sod. 500mg

Dose: Adult 1–3g daily divided IM

Children –1 year 62.5mg; 1–5 years 125mg; 6–12 years 250mg
6 hourly

Syrup

125mg in 5ml

Dose: –1 year 2.5–5ml; 1–5 years 5ml, 6 hourly

***Tabs Paed.**

125mg

Dose: 1–5 years 125–187.5mg; 6–12 years 187.5–250mg 6 hourly

Tetracycline

Capsules

250mg

Dose: Adult 1–3g daily

Children 6–12 years 100–250mg 6 hourly

***Tablets**

50, 100, and 250mg

Dose: Adult 1–3g daily divided

Children 6–12 years 100–250mg 6 hourly

Tetracycline Procaine Injection

Vials 250mg & 500mg with water

Use in 24 hours after preparation

Dose: Adult 250mg–500mg IV injection

***Oxytetracycline Hyd tablets (Terramycin)**

100, 250mg

Dose: Adult 1–3g divided

Children –1 year 50mg; 1–5 years 100mg; 6–12 years 150mg
6 hourly

Chloramphenicol

Capsules 250mg

Dose: Adult 1.5g–3g daily divided

Children 6–12 years 250mg 6 hourly

Palmitate Syrup

125mg in 5ml

Dose: Premature infant max 25mg kg/wt, divided into 6 hourly doses.

Full term 25–50mg kg. 1 month–1 year 50mg kg divided 6 hourly;

1–5 years 125–250mg divided 6 hourly.

Erythromycin Suspension

Mixture 125mg in 5ml

Dose: Children 35–50mg per kg/wt daily divided into 6 hourly doses.

Tablets 100mg and 250mg

Dose: Adult 1–2g daily, Children as above.

***Nitrofurantoin Mixture (Furadantin Suspension)**

25mg in 5ml (do not dilute)

Dose: –1 year 1–2.5ml 6 hourly; 1–5 years 2.5–5ml 6 hourly.

Nitrofurantoin

Tablets 50mg

Dose: Adult 50–150mg 4 times daily

Children 1–5 years 25mg; 6–12 years 50mg 4 times daily

*Nitrofurazone solution (Furacin solution)

0.2%

1:6 can be used as bladder irrigation.

*Sodium Fusidate Capsules (Fucidin)

Dose: Adult 1–2g daily divided

Children 6–12 years 250mg three times daily.

*Fusic Acid Mixture (Fucidin Suspension)

250mg in 5ml

Dose: Children –1 year 2.5ml; 1–5 years 5ml; both three times daily.

*Furazolidone (Furoxone)

Suspension for children 25mg in 5ml

Dose: Suspension not under one month; –1 year 2.5ml 1–4 years 5ml;
over 5 years 10ml all four times daily.

*Co-trimoxazole Mixture (Septrin Paed. Susp.)

Trimethoprin 40mg Sulphamethoxazole 200mg in 5ml

Dose: –1 year 2.5ml; 1–5 years 2.5–5ml; twice daily.

*Co-trimoxazole Tablets (Septrin)

Trimethoprin 80mg, Sulphamethoxazole 400mg.

Dose: Adult 1 tab 2–4 times daily.

*Co-trimoxazole Paed. Tablets

$\frac{1}{4}$ above content in each tablet

Dose: –1 year 1 tab; 1–5 years 1–2 tabs twice daily.

*Neomycin Sulphate

Cream Neomycin sulphate 0.5g, 0.5%

Elixir 100mg in 5ml

Dose: –1 year 2.5–5ml; 1–5 years 5–10ml 6 hourly.

Tablets 0.5g

Dose: Adult 2–8g divided daily

Children 6–12 years half to one tablet 4 times daily.

Nalidixic Acid Mixture (Gramoneg: Nalineg)

300mg in 5ml

Dose: 1–5 years 2.5–5ml 4 times daily.

Nalidixic Acid Tablets (Gramoneg: Nalineg)

500mg

Dose: Adult 500mg–1g 4 times daily

Children 1–5 years 125–250mg; 6–12 years 250–500mg
4 times daily

Antituberculous

Streptomycin Sulphate Injection

Vials with water for injection, 750mg or 1g

Dose: Adult 500–1000mg daily, Children 40mg kg/wt max 1g.

Sodium Paraaminosalicylate (Paramisan SNP) (Sodium PAS Granules)

Dose: as directed; children 200mg kg/wt in 24 hours.

Isoniazid

*Injection (Rimifon) 50mg in 2ml

Dose: IM — 1 year 100mg 6 hourly; 1 — 12 years 200mg 6 hourly.

Syrup 50mg to 5ml

Dose: 10—15mg per kg; single dose.

Tablets 50, 100mg

Dose: Adult 300—600mg daily divided; 10—15mg kg/wt daily single dose for child.

Thiacetazone Tablets (Thioparamizone)

50mg

Dose: 100—150mg daily; Children 3 to 5mg kg/wt in 24 hours.

Thiacetazone and Isoniazid Tablets

Contain 37.5mg Thiacetazone and 75mg INH or twice those quantities

Dose: Adult Thiacetazone 150mg, INH 300mg daily.

Ethambutol Tablets (Myambutol)

200mg, 400mg

Dose: 15—25mg kg/wt daily

Ethionamide Tablets (Trescatyl)

125mg

Dose: 0.5—1g daily divided

Rifampicin Capsules (Rigadin)

150, 300mg

Dose: 450—600mg daily divided, Child give as syrup 20mg/kg day 600mg max.

Antileprotics

Clofazimine (Lamprene)

100mg

Dose: 2—6 tablets weekly

Diamino Diphenyl Sulphone (Dapsone)

25mg

Dose: Adult 1st month 25mg weekly; 2nd month 50mg weekly increased 50mg each month to maximum 100—300mg per week.

Antiprotozoal preparations

Metronidazole Tablets (Flagyl)

200mg, 400mg

Dose: 2—4 tabs TDS for 5 days after 4 injections emetine for amoebiasis.
200mg TDS for 7 days for giardiasis and trichomoniasis

Pessaries

500mg one daily 10—20 days.

Emetine Injection

30mg, 60mg in 1ml ampoules

Dose: 30—60mg daily intramuscular injection, 4 days.

Antimalarials

Chloroquine Phosphate Tablets

200mg

Dose: Therapeutic 1g stat, 300mg after 6 hours followed by 150mg twice daily for 2 days.

Chloroquine Sulphate Tablets

200mg

Dose: Therapeutic 800mg stat, 400mg after 6 hours, 200mg twice daily for 2 days.

Amoebiasis 500mg TDS two weeks then 750mg twice weekly.

Amodiaquine Tablets (Camoquin)

250mg

Dose: 600mg stat, 400mg 2 days and quinine bisulphate 600mg (2 tabs) TDS 7–10 days.

Primaquine

Primaquine base 2.5mg

Dose: Adult 15mg for 5 days after proof of infection.

1–4 years 2.5mg; 4–8 years 5mg; 8–14 years 10mg. Single dose each day for 5 days.

Leishmaniacides

Sodium Stibogluconate Injection (Pentostam)

Solution in water 33% w/v (10% Antimony)

Dose: 2–6ml daily 10–30 days IM or IV.

Pentamidine Injection

200mg Pentamidine Isethionate 150mg in 1ml

Dose: IM 150–300mg, 7–15 days, prophylactic 300mg 3–6 monthly.

Stibophen Injection

Vials 6.4% in 25ml

Dose: 1.3–5ml intravenously.

Antihelmintics

Schistosomiasis – *S.haem.* and *S.mansoni*, also for guinea worm.

***Niridazole (Ambilhar)**

500mg

Dose: 25mg kg/wt daily, two divided doses 5–7 days, 10 days for guinea worms.

Stibocaptate (Astiban)

500mg; 2g vials solution in water

Dose: 500mg daily or alternate days, total 2.5g IM injection.

Filaria

Diethylcarbamazine Tablets (Banocide)

50mg

Dose: 2mg kg/wt 3 times daily for 10 days, repeat if necessary.

8. METABOLISM

Corticosteroids

Prednisolone Tablets

5mg

Dose: 10–100mg daily divided. Children 1mg/kg/wt per day divided into four doses.

Hydrocortisone Acetate (Hydrocortistab)

Vials 25mg in 1ml injection or local infiltration use only

Dose: 5–50mg IM.

Hydrocortisone Sodium Phosphate Injection

Vials equivalent 100mg hydrocortisone with water in 1ml

Dose: 50mg IV, repeated if necessary by needs of patient.

Insulin Injection – short acting

Amp. 10ml

Solution of Insulin 20, 40 or 80 units per ml

Insulin Zinc suspension Injection – long acting

Vials: 10ml, 40 or 80 units per ml.

Mixture 3 volumes amorphous suspension – Biphasic
7 volumes crystalline suspension

Insulin Zinc suspension (amorphous) Injection – Intermediate

Vial 10ml, 40 or 80 units per ml

Insulin Zinc suspension (crystalline) Injection – long acting

Vial 10ml, 40 or 80 units per ml

Protamine Zinc Insulin Injection – long acting

Vial 10ml, 40 or 80 units per ml.

Tolbutamide (Rastinon)

500mg

Dose: First 3 days 6, 4, 2 tab then 1–2 daily
Not for children.

Chlorpropamide (Diabinese)

100mg and 250mg

Dose: 100–300mg single dose before breakfast.

9. NUTRITION AND BLOOD

Iron deficiency anaemia

Ferrous Sulphate Tablets

200mg Ferrous Sulphate (60mg Iron)

Dose: 1 tablet three times daily: Prophylactic 300mg daily.

*Ferrous Sulphate Mixt Paed.

60mg in 5ml (20mg Iron)

Dose: –1 year 5ml; 1–5 years 10ml

Ferrous Gluconate

300mg (35mg elemental iron)

Ferrous Sulphate and Folic Acid

100mg Fe and Folic acid 350 micrograms

Dose: 1 tab daily for prophylaxis

Iron Dextran Injection (Imferon)

2ml ampoules (100mg Fe); 5ml ampoules (250mg Fe)

Dose: Deep IM 1–5ml daily

Megaloblastic Anaemia

Folic Acid

5mg

Dose: 5mg–20mg; Prophylaxis 300 micrograms daily or 1 tab
Iron and Folic acid.

Vitamins

Vitamin A Injection

3,00,000 units in oil; 1,00,000 in water.

Vitamin A and D Capsules

6000 units Vitamin A; 1000 units Vitamin D

Calciferol Tablets

1.25mg, 50,000 units Vitamin D

Dose: 1–4 tablets

Calcium with Vitamin D Tablets

500mg Ca.Gluconate, 150mg Ca.Phos: 12.5 micrograms (500 units) Vit.D.

Calciferol Injection

3,00,000 in 1ml, 6,00,000 in 2ml

Dose: IM to 12 years 3,00,000 units single dose.

Vitamin B

Nicotinamide Tablets

50mg nicotinamide.

Vitamin B Tablets

Thiamine Hyd. 3mg, 10mg, 50mg, 100mg

Dose: Prophylactic 3–5mg; Therapeutic 50–100mg

Vitamin B Compound Tablets

Thiamine Hyd. 1mg, riboflavin 1mg and nicotinamide 15mg

Dose: Prophylactic 1–2 tablets daily.

Vitamin C

Ascorbic Acid Tablets

5mg, 25mg, 50mg

Dose: Prophylactic 25–75mg daily; Therapeutic 250mg

Child to 5 years 50mg.

Vitamin K

Phylomenadione Injection

Amp. 10mg in 1ml

Neonatal use only, maximum dose 1mg.

Multivite Capsules

Vit A, 2500, Thiamine 1mg, Riboflavine 0.5mg, Nicotinamide 7.5mg,
Ascorbic 15mg, Vitamin D 300 units

Minerals

Calcium

Calcium Gluconate Injection

Ampoules 5ml, 10ml, each ampoule 1g Ca gluconate

Dose: 1–2g by injection.

Calcium Gluconate Tablets

Tabs 500mg in chocolate base

Dose: 2–5 tabs daily

Calcium Lactate Tablets

300mg, 600mg

Dose: 1–5g

Electrolyte and water replacement

Oral Rehydration Fluid

Packages produced for and distributed by UNICEF.

Sod.Chloride 3.5g, Sod.Bic.2.5g; Pot.Chloride 1.5g; Glucose 20.0g; water to 1000ml (drinking water). These ingredients need not be chemically pure, they can be kept measured and placed in sealed polythene bags (sugar separately from the salts). Standard measures or teaspoons can be produced so that the solution can be made up without weighing the powder each time. A fresh solution should be made every 12–24 hours and it must not be boiled.

Oral Pot. Chloride Solution

7.5g in 100ml.

Dextrose Strong Injection

50% in water (50ml amp.)

Dextrose 5% Injection

5% in water — not used intravenously for treating diarrhoea.

Sodium Chloride and Dextrose Injection

(0.18 per cent w/v dextrose 4.3%; $\frac{1}{5}$ normal solution)

31 millequivalents per litre.

Sodium Chloride Injection

(0.9 per cent)

154 millequivalents per litre.

Sodium Lactate (M/6) Injection

1.85% amp. 50ml and 250ml

167 millequivalents per litre.

Sodium Bicarbonate Injection

(1.4% w/v if no weight stated) 167 millequivalents per litre.

Newborn 7.5% 10ml and 25ml amp.

Dextran 110

In Dextrose 5% or Sodium Chloride.

Potassium Chloride and Dextrose

0.3% Pot. Chloride and 5% Dextrose

40 millequivalents, not more than 500ml per hour (adults)

Potassium Chloride Injection

1.5g in 10ml, amp. to be diluted at least 50 times with Na chloride injection:
10mls 20 millequivalents.

Ringer Lactate Infusion, Sod.Lact .30%, Ca.Chl .02%, Pot.Chl..03%, Sod.Chl. .60%
water to 100ml

Dextrose Injection

Amp. of Dextrose 5%, 10%, 25%, 50%, in water.

☞ **Mannitol Injection**

5%, 10%, 20% and 25%.

Dose: 50g intravenous infusion one occasion.

10. RHEUMATIC DISEASES

Mist. Sodium Salicylate

600mg in 15ml

Dose: not more than 120mg per kg/daily

Mist. Sod.Sal. (Strong)

1g in 10ml

Dose: Children 6—12 years 5ml.

11. EAR, NOSE AND THROAT

Ephedrine Nasal drops

0.5% ephedrine, 0.5% NaCl

Discourage continuous use.

Sodium Bicarbonate drops

750mg Sod.Bicarbonate in 15ml. 0.5% glycerol 30ml, water to 100ml.

Removal of wax.

Nitrofurazone ointment (Furacin ointment)

0.2% external application to the ear.

Oropharynx

Mouth wash NaCl., one teaspoonful to 500ml water.

Nystatin application 1,00,000 units to 1ml.

Nystatin Mixture (Nystan)

1,00,000 units 1ml

Dose: Children to 5 years 1ml 6 hourly

Gentian Violet

Aqueous solution 0.5% for local application.

Benzocaine Compound Lozenges

100mg Benzocaine — for relief of severe pain

Co.Iodine Paint (Mandl's paint)

Iodine 0.31g, Pot.Iod. 0.62g, glycerine to 15ml, for local application.

Gargle Potassium Permanganate

25mg to 100ml water (1:4000).

12. EYE PREPARATIONS

Anti-infective

Tetracycline Eye Ointment

1% Tetracycline Hydrochloride.

Sulphacetamide

Drops 10% by weight (weak) Strong 30%

Children use weak drops

Ointment 2.5% in eye ointment base.

Neomycin

Ointment 0.5% in eye ointment base

Drops 0.5% by weight.

Chloramphenicol

Drops 0.5% by weight; borax and boric acid.

Eye ointment 1% in eye ointment base

Nitrofurazone eye ointment

.1% in eye ointment base.

Neomycin, Bacitracin eye ointment

5mg neomycin sulphate, 500 units bacitracin in 1g ointment base.

Silver Nitrate

Drops 1%

Ung.Hyd.Ammon.Dil.

For eyelids.

Anti-inflammatory

Hydrocortisone for eyes

Ointment 2.5% by weight

Drops 1% by weight.

Acting on Pupil and affection tension

Atropine drops

1% solution, 50mg atropine sulphate in 5ml

Atropine Eye Ointment

0.25%; 1%

Pilocarpine Drops

1% solution pilocarpin nitrate

Phenylephrine Drops

2.5 and 10% by weight.

Homatropine

2% solution. 100mg in 5ml in eye ointment base.

13. SKIN

Vehicles

Zinc Boric Talc, dusting powder.

*Hexachlorophane dusting powder

Talc dusting powder

10g starch, 90g purified talc.

Zinc Oxide and Starch dusting powder

Paraffin Ointment

White beeswax and Cetostearyl alcohol 5% paraffin.

Creams

Calamine Cream

Calamine 4%.

Cetrimide Cream

Cetrimide 1%.

Neomycin Cream

0.5g to 100g.

Local Corticosteroids

Hydrocortisone Ointment

0.25—1%

Use for children rather than fluorinated preparations.

Hydrocortisone Cream

Tinctures

Tincture Iodine.

Iodine solution: Strong Iodine 2.5g in 25ml alcohol

Weak Iodine 1g in 50ml (50% alcohol).

Tincture Benzoin Co. (Collodion)

Astringent Lotions

Lotio Calamine,

Calamine 15g, Rosewater to 100ml.

Pot.Permanganate Strong

4g to 100ml; dilute 5ml to one pint of water.

Solution

Cetrimide Solution

1% solution; use in 7 days of opening container.

Liniment

Liniment Methyl Salicylate

Ointments

Salicylic Acid

2% in base.

Zinc Undecylenate Ointment

15%

Benzoic Acid Compound (Whitfields)

Benzoic Acid 6g; Salicylic Acid 3g; Emulsifying ointment 91g.

Methyl Salicylate

50g; white beeswax 25g; wool fat 25g.

Nystatin Ointment (Nystan)

1,00,000 units per g.

Application

Silver nitrate stick.

Antibacterials — see above and

Chlorhexidine Cream (Savlon)

Fungicides

Potassium Permanganate — see above.

Griseofulvin

125mg; 500mg

Dose: Adult 500–1g daily

Children —1 year 62.5mg BD; 1–5 years 62.5mg TDS;

6–12 years 125mg TDS.

Nystatin Pessaries

1,00,000 each, one at night.

Antiparasitics

Benzyl Benzoate Application

25% Benzyl Benzoate — apply with brush avoiding face, head and neck.

***Sulphur Application**

2–8%

Children 0.5–2%

Sulphur Compound Lotion

4g, to 100ml.

Antiseptic Fluids

Benzalkonium Chloride (Roccol)

1% solution; dilute as required.

Chloroxylenol Solution (Dettol)

5% with terpinol.

Acriflavine lotion

Acriflavine 200mg, meth. spt. 75ml, water to 100ml.

Magnesium Sulphate Paste

39%, 0.5 phenol in glycerine

Surgical spirit

Industrial methylated spirit.

Mercurochrome

2% solution.

14. VACCINES AND ANTITOXINS

Diphtheria and Tetanus (intramuscular)

Toxoids in aluminium phosphate rubber capped vials 10–20 doses. Store in refrigerator 4°–10°C; if sent to subcentre use in one week and in any case before expiratory date on vial.

Absorbed Diphtheria, Tetanus Toxoids and Pertussis vaccine (intramuscular) Triple Antigen

For children under 5 years. Store and use as above.

Tetanus Toxoid (intramuscular)

Store as above, to immunize pregnant mother.

Vaccine Typhoid (intramuscular)

Para. A & B

Suspension of organisms, sterile, used only in epidemics.

Cholera Vaccine (intramuscular)

Sterile suspension of *Vibrio Cholera*.

Measles Virus Vaccine (intramuscular)

1. Dried, living attenuated or 2. Killed vaccine

Single dose of 0.5ml given between 9 and 12 months of age.

Poliomyelitis (oral)

Sabin's strains of live attenuated strains Types 1, 2 and 3.

Bacillus Calmette-Guerin Vaccine (intracutaneous)

Freeze dried live attenuated strain *Myco. Bovis*.

Antitoxins

Diphtheria

Used to protect unimmunized contacts 500–2000 units and for treatment 10,000–1,00,000 units — sensitivity test and trial dose necessary.

Tetanus antitoxin serum (intramuscular)

Therapeutic 50,000–1,00,000 units

Prophylactic subcutaneous not less than 15,000 units.

Anti-Snake Venom Injection 10ml

Polyvalent (Haffkine).

Rabies Vaccine — see schedules A & B for use, pages 117 and 118.

Human Gammaglobulin

90% with glycine. Do not give intravenously.

15. STAINS AND REAGENTS

The following preparations and chemicals are required — for details consult text book.

Bacteriological Stains

Gram's stain

Zeihl-Neilson

Carbol fuchsin

Saffranine

Methylene Blue

Leishman's stain

For haematology

White Cell Fluid — oxalate tubes

Red Cell Fluid

10% Hydrochloric acid

For urine testing

1% Acetic acid

Sulpho-salicylic acid

Benedicts reagent (qualitative)

Nitric acid

Flowers of sulphur

Ammonium Sulphate Crystals

Sodium Nitroprusside

Iodine

C.S.F.**Pandy's Test****7.4.5.2. Medicaments held in Subcentre or carried by FHW**

The FHW working in and from her subcentre needs to be supplied with a number of drugs in frequent use. These she should have authority to dispense and she is held accountable for their proper use.

The supplies will be provided from the PHC against indents.

A list of recommended medicaments and equipment is given in Table 22.

7.4.5.3. Metric measures, conversions and equivalents

Table 23 is included to assist conversions into or from metric measurements of length and area, weight, liquid volumes and Imperial pharmaceutical weights and volumes.

Table 22**Medicaments, Vaccine and Reagents Recommended for Subcentre.****To be carried by FHW**

1. Tab. Aspirin, Phenacetin and Caffein (APC)
2. Tab. Belladonna and Phenobarbitone
3. Tab. Chloroquine
4. Tab. Aluminium Hydroxide
5. Tab. Iron and Folic Acid
6. Tab. Magnesium Hydroxide
7. Magnesium Sulphate
8. Tab. Antihistamine
9. Tab. Piperazine Citrate
10. Tab. Codeine Co. (or Linctus)
11. Tab. Sulphonamide
12. Rehydration (Electrolyte) Powder or Tablets
13. Ergot Preparations, e.g. Methergin
14. Vitamin A in Oil

For external use

15. Antiseptic lotion
16. Benzoic salicylic ointment
17. Emulsion Benzyl Benzoate
18. Ephedrine Nasal drops

19. Gentian Violet 2% aqueous solution
20. Mercurochrome 2% solution
21. Liniment Methyl Salicylate
22. Potassium Permanganate crystals
23. Silver nitrate eye drops 1%
24. Sulphacetamide eye and ear drops 10%
25. Sulphanilamide skin ointment
26. Sulphonamide dusting powder
27. Tetracycline eye ointment
28. White Vaseline
29. Benedict's qualitative reagent
30. Acetic acid — 5%

Medicines to be kept at subcentre

1. Bephenium Granules (Alcopar)
2. Calcium gluconate tablets
3. Liquid paraffin
4. Mist. Alkaline
5. Mist. Carminative
6. Mist. Chloral Hydrate
7. Mist. Sedative expectorant
8. Multivitamin Tablets (Vits. A. B. C. D)
9. Syrup Ferric Citrate
10. Vitamin C Tablets
11. Inj. Methyl ergometrine maleate (Methergin)

For external use

12. Boric acid powder
13. Calamine lotion
14. Methylated Spirits
15. Rectified spirit
16. Tincture Benzoin Co.
17. Tincture Iodine
18. Zinc and boric dusting powder

Table 23

Metric measures, conversions and equivalents

(a) Metric conversion tables

Inches		Centimetres		Feet		Metres	
0.39	1	2.54		3.281	1	0.305	
0.79	2	5.08		6.562	2	0.610	
1.18	3	7.62		9.842	3	0.914	
1.57	4	10.16		13.123	4	1.219	
1.97	5	12.70		16.404	5	1.524	
2.36	6	15.24		19.685	6	1.829	
2.76	7	17.78		22.966	7	2.134	
3.15	8	20.32		26.247	8	2.438	
3.54	9	22.86		29.528	9	2.743	
Miles		Kilometres		Square Feet		Square Metres	
0.621	1	1.609		10.764	1	0.093	
1.243	2	3.219		21.528	2	0.186	
1.864	3	4.828		32.292	3	0.279	
2.485	4	6.437		43.056	4	0.372	
3.107	5	8.047		53.820	5	0.465	
3.728	6	9.656		64.583	6	0.557	
4.350	7	11.265		75.347	7	0.650	
4.971	8	12.875		86.111	8	0.743	
5.592	9	14.484		96.875	9	0.836	
Ounces		Grams		Pounds		Kilograms	
0.035	1	28.350		2.205	1	0.454	
0.071	2	56.699		4.409	2	0.907	
0.106	3	85.048		6.614	3	1.361	
0.141	4	113.398		8.818	4	1.814	
0.176	5	141.748		11.023	5	2.268	
0.212	6	170.097		13.228	6	2.722	
0.247	7	198.446		15.432	7	3.175	
0.282	8	226.796		17.637	8	3.629	
0.317	9	255.146		19.842	9	4.082	

The figures in the central columns can be read in either notation.
Thus 1 inch = 2.54cm or 1cm = 0.39 inch.

Pints		Litres		Gallons		Litres
1.760	1	0.568		0.220	1	4.546
3.520	2	1.137		0.440	2	9.092
5.279	3	1.705		0.660	3	13.638
7.039	4	2.273		0.880	4	18.184
8.799	5	2.841		1.100	5	22.730
10.559	6	3.410		1.320	6	27.277
12.318	7	3.978		1.540	7	31.823
14.076	8	4.546		1.760	8	36.369
15.838	9	5.114		1.980	9	40.915

1 litre = 1000 millilitres (ml)

(b) Pharmacopoeial weights and measures (approx)

Imperial and metric scales

Imperial grains (gr)	Metric (mg)
1/200	0.3
1/64	1.0
1/20	3.0
1/8	8.0
1gr	60mg
5gr	300mg
10gr	600mg
15gr	1g
120gr	8g

(c) Volumes

Minims (drops)	ml
1 min	0.06
15 min	1.00
60 min (1 drachm)	4.00
8 dr (1 oz)	30ml
20 fl oz (1 pint)	600ml

(d) Mass

1 kilogram (kg)	= 1000g
1 gram (g)	= 1000 milligrams (mg)
1 milligram (mg)	= 1000 micrograms
1 microgram	= 1000 nanograms

(e) Thermometric equivalents

Centigrade	Fahrenheit	
100	212	Boiling point water
80	176	
60	140	
45	113	
41.1	106	}
40.6	105	
40	104	
39.4	103	
38.9	102	
38.3	101	
37.8	100	
36.7	98	}
35.6	96	
35	95	
34.4	94	
33.3	92	
32.2	90	

Conversion.

Fahrenheit to Centigrade: deduct 32, divide by 9 and multiply by 5.

Centigrade to Fahrenheit: divide by 5, multiply by 9 and add 32.

Section 7.5 RECORDS

Each State requires information concerning the work of the medical services. The details of collection, the forms and returns vary from State to State. This section like the rest of the handbook concerns your role in the care of mothers and children and deals only with the information required for the conduct of MCH work and the surveillance of the health of mothers and children. Good records are essential for good services. To be good they must be recorded at the time, must be simple and quick to write, be obtainable for use in assessing work, in planning and in deciding priorities.

7.5.1. General requirements for MCH care

You need to know the numbers and the distribution of the women of child-bearing age and of children in your area. This information is obtained in the survey for base line data and is contained in family registers or family folders whichever are operative (6.4.2).

When the multipurpose worker scheme is operating the FHW will regularly visit the mothers and young children in her intensive area (3.4.3). In these areas therefore, a family or house register village by village is required and this also is derived from the base line data itself obtained by survey.

In the twilight areas you and the Male and Female Health Assistants will be in touch with other families as you visit villages (3.4.2) and as the system of 'under fives' clinics extends throughout the Block the record system will be extended.

Taking both areas together the objective is to be able to follow the progress of as many women and children as possible having regard to the staff available. The easiest and at the same time most efficient way is to have a single card or chart for each individual with whom you are in touch in the groups concerned. This record must be so arranged that information can be recorded as an agreed code (i.e. by signs or symbols). The code is used by the whole health team.

For recording the information about women a card has been devised which covers the reproductive years and the progress of successive pregnancies. It is described and illustrated in 7.5.2.

At each visit in the interconceptional cycle the FHW records the mother's health and family planning status. During the pregnancy cycle she records the progress of pregnancy then its outcome.

At the end of each week or month it will be possible to know in respect of each FHW (6.4.2.3):

1. Number of women visited in the intensive area.
2. FP acceptors and methods.
3. State of health of women visited.
4. Number pregnant.
5. 'Incoming' pregnancies visited.
6. 'Outgoing' pregnancies.
7. Deliveries and outcome.
8. New FP acceptors.

If the visits are well organised the cycle in each intensive area will be completed in 3—4 months and a composite statement can be obtained (3.4.3).

Children under 5 or 6 years of age will also be seen in the cycle of visiting and in 'under fives' clinics at subcentres or in PHC. Regular weighing is central to their care and as many as possible must have an 'under five' chart (7.5.3). From these charts information can be obtained at the end of each week or month concerning the following:

1. Number of children seen and their ages.
2. Number weighed.
3. Nutritional status (judged by weight); grades of nutrition.
4. Immunization states.
5. Prevalent illnesses.
6. Deficiency states e.g. Vitamin A.
7. Children 'at risk' according to agreed conditions (5.2.1).

Numbers can be compiled for a given period and compared with the estimated number of children in the Community Block. Trends in time can therefore be studied.

In addition to information obtained in this way, many mothers and children will be seen in the PHC with or without referral from health workers or others. Data relating to this group will be contained in the PHC register.

Where the family folder system is in operation the woman's and the child's cards will be kept in the folder. In some areas trials have been made to allow the mothers to keep their own records in plastic containers. Ideally this should be a duplicate set but there is doubt how far this is generally practical.

Records will also be kept at school examinations and inspections. The time available for this will vary from place to place but it will develop under the supervision of the Male Health Worker and Male Health Assistant and the information obtained can be used in the same way as that for the 'under fives' to reveal the state and the trends of the health of the schoolchildren in the area.

From the records made on home visits and at PHC and subcentres it is possible to compile registers and from these the position at any particular moment can be ascertained or the work of a month or any other period of time consolidated into a report. A list of documents and the registers which can be derived from the information is shown in Table 24.

Thus the basis of information regarding your population depends upon the initial accuracy and simplicity of recording agreed information in a standard way. But once it is established by training it will continue if supervision is properly and carefully done; and you can begin to build up a picture of the situation and the way it is changing.

Table 24

Records relating to MCH Care

If these records are kept systematically they can be used to assess work done and health status of women and children at the end of any month: provided the system of recording is not changed, trends in time can also be ascertained and comparisons made at suitable intervals.

1. Family Folder, name of head of family, with mother's card and child's 'under five' chart. Folder No. House No.
2. Master Register. Covers all components of MCH care and FP summarised at end of each month from individual records. Register must provide a summary of information from family folders and therefore be linked by having the same headings.
3. Pre-natal Register — list of all pregnancies; 'at risk' factors and expected date of delivery, arrangements for delivery.
4. PHC Register will contain details of all women and children admitted or seen in consultation.
5. Maternity card — for delivery and postpartum. Folder No.
6. Pre-school child — visits to clinic. Folder No.
7. Family members attendance card. Folder No.
8. Children's services. Folder No.
9. Summary of children's services at clinics..
10. Visiting rosta index card, women and children seen in planned routine visits, one for each house. Folder No.
11. Return of work of FHW monthly report.
12. Monthly report of PHC.
13. Return for Block area PHC and sum of work at subcentres.

7.5.2. The Woman's Card

A card has been developed to keep a continuous record of a woman's obstetrical history and health from the age of fourteen (or menarche) throughout the childbearing years. Like the child's card it can be kept by the woman herself or at the subcentre or PHC depending upon the policy in the area. Also like the child's card it is best kept in a plastic envelope.

A form of the card is shown in Fig. 37. That in the figure is printed in English but regional languages should be used. The single sheet printed on both sides folds into three. The first page contains personal data at the time the woman first comes under survey with the record of any previous pregnancies. This is followed by panels for the recording of the progress and outcome of 4 pregnancies, arranged so that weight and other important signs can be noted by symbols during each ante-natal visit or examination. The final panel records menstrual cycle, attitude to and methods of family planning month by month and year by year so that this can be indicated during each visit or meeting with the FHW or other health worker.

These cards are simple but regularly kept can monitor the course of pregnancy or family planning. Danger signs can be noted and appropriate action taken for each individual. From scrutiny of all the cards relating to a given area in a given time work and health can be monitored.

Observations in Pregnancy Period

Expected Date of Delivery
Reason for Special Care

Fourth Para

kg

62
60
58
56
54
52
50
48
46
44
42
40
38
36

Months

1 2 3 4 5 6 7 8 9
1 2 1 2 3 4

Stage of pregnancy

Position of head

Blood pressure

Oedema

Hb

Urine albumin

Tet toxoid

Note

Post-natal Observation

Date

Mother

Breast-feeding

Note

Weight

Note

Child

Weight

Note

Records of Married Woman

Menstrual Cycle & Attitude towards Family Planning

Age (years)

JAN
FEB
MAR
APRIL
MAY
JUNE
JULY
AUG
SEPT
OCT
NOV
DEC

Weight
Hb

Tet
toxoid

Period regular

Period missed

Abortion

Necessity of Family Planning

Family Planning Pills

Herodh

Sterilization

Breast feeding

Loop

Enter the appropriate symbol at each visit or consultation

MODEL INTEGRATED MOTHER CHILD
HEALTH NUTRITION (MCHN) PROJECT
Primary Health Centre, Taluka, Dist

Observations of Mother's Health

Village Health Centre Index No Date

Name

Date of Birth (Age) First Menstruation (Age) Date of Marriage (Age)

Address

Weight (kg) Height (cm)

Hb

History of Previous Deliveries

Para

Antenatal Health

Delivery

Boy

Girl

Age

Observations in Pregnancy Period

Expected Date of Delivery
Reason for Special Care

1st Pregnancy

kg

62
60
58
56
54
52
50
48
46
44
42
40
38
36

Months

1 2 3 4 5 6 7 8 9
1 2 1 2 3 4

Stage of pregnancy

Position of head

Blood pressure

Oedema

Hb

Urine albumin

Tet toxoid

Note

Post-natal Observation

Date

Mother

Breast feeding

Note

Weight

Note

Child

Weight

Note

Observations in Pregnancy Period

Expected Date of Delivery
Reason for Special Care

2nd Para

kg

62
60
58
56
54
52
50
48
46
44
42
40
38
36

Months

1 2 3 4 5 6 7 8 9
1 2 1 2 3 4

Stage of pregnancy

Position of head

Blood pressure

Oedema

Hb

Urine albumin

Tet toxoid

Note

Post-natal Observation

Date

Mother

Breast feeding

Note

Weight

Note

Child

Weight

Note

Observations in Pregnancy Period

Expected Date of Delivery
Reason for Special Care

3rd Para

kg

62
60
58
56
54
52
50
48
46
44
42
40
38
36

Months

1 2 3 4 5 6 7 8 9
1 2 1 2 3 4

Stage of pregnancy

Position of head

Blood pressure

Oedema

Hb

Urine albumin

Tet toxoid

Note

Post-natal Observation

Date

Mother

Breast feeding

Note

Weight

Note

Child

Weight

Note

275

7.5.3. The Child's Chart

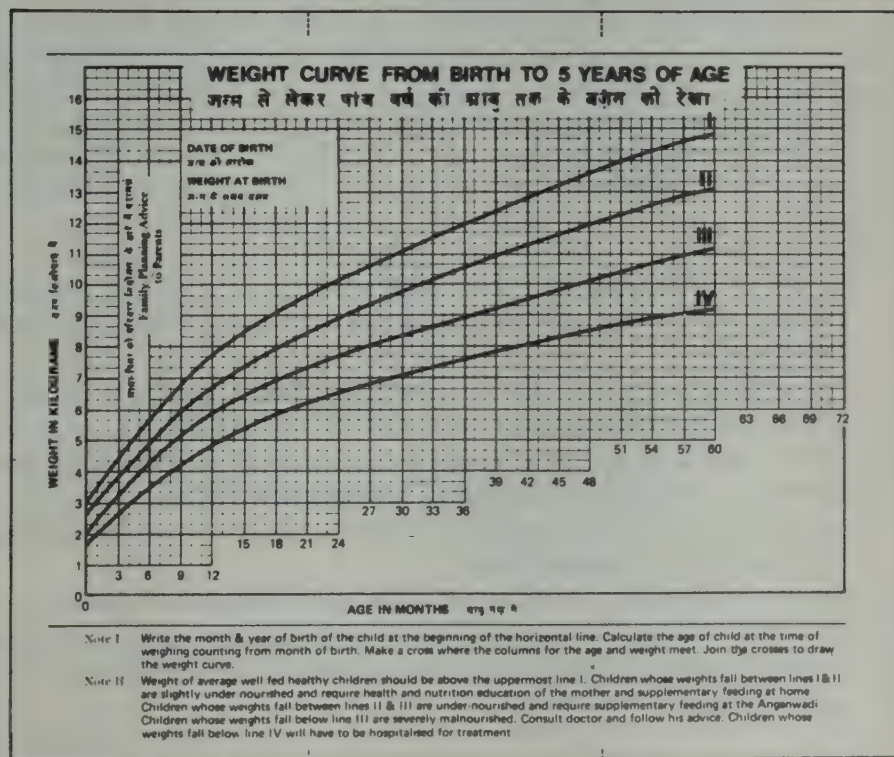
The assessment of the child's health status and the child's growth pattern is best done by using a chart to record the results of weighing: charting the weight allows an immediate appreciation of weight changes and trends. Many types of charts now exist but whatever printing is used the method of use is the same. That recommended by the Government is shown in Fig.38 as an example. Charts should be printed in the language of the area where they are used so that as many mothers as possible can understand their use.

Sometimes charts are supplied in plastic envelopes and some doctors allow the mothers to keep them at home and bring them to the clinic at each visit. In other areas the charts are kept in the clinic or in the subcentre.

1. Each chart covers six years.
2. The child's age if known, or his month of birth is recorded in the first box of each year (Fig.38).
3. Weight zones or sometimes a single weight zone is indicated. The upper line is the 50 per centile of Harvard standard (Table 4). The second line is 80 per cent of that standard and any weight between the two lines is acceptable. Other lines indicating mild or moderate stages of malnutrition may also be printed (Table 4) or a sheet of transparent material carrying the lines may be used.
4. The objective of the mother and the health workers must be to keep the child's weight above line I; lines II, III and IV show grades of malnutrition (5.2.2 and 5.2.3). Weight reflects infections and incidents of illness as well as nutritional state. Infection and nutrition are linked.
5. The chart also contains nutritional advice — local emphasis.
6. Note of family planning attitudes and practice of parents, family size.
7. The child's immunization state.
8. Any reason for special care — children 'at risk' (5.2.1).
9. Check on anaemia, xerophthalmia.
10. Any other checks of local importance or interest.

For the operation of an 'under fives' clinic 6.2.12.2 and the care of the school child 4.1.4.

<u>IMMUNISATION SCHEDULE</u>		<u>GUIDE TO NUTRITION</u>		<u>M.C.H.CARD II</u>	
1. SMALL POX		BIRTH TO ONE YEAR: Breast Feed. Breast milk is not enough for the baby after six months. He needs additional nourishment. Continue breast feeding as long as possible and introduce the following solids gradually.		Child's Card (To be kept with the mother) PHC/S. C./J.C.D.S. Centre Registration No. Village No. Name: Male/Female Date of birth Order of birth Date first seen: No. of brothers: Sisters Vegetarian/Non-Vegetarian Mother's name: Occupation: Father's name: Occupation: Address:	
(1) Primary: at birth or as soon after as possible	Date*	FOURTH MONTH Introduce fresh cow, buffalo, goat or toned powder milk if breast milk is insufficient. rice, suji, ragi (dhalia) etc., well-cooked to a soft consistency and sweetened; vegetables like potato, carrot, cooked and mashed; mashed ripe banana sweetened, orange/sweet lime/tomato juice.		Medical notes: Blood Group: Allergies: Other information:	
(2) Examination of Scar	Date	SIXTH MONTH In addition to solid food already given introduce the following: bread, biscuits (als like bengal gram, lentil red gram, well-cooked; fish-boiled; meat-well-cooked and tender; egg-half-boiled; curd, butter-milk, channa/casein), vegetables like cauliflower, cabbage, cucumber, etc.; all fruits.		Family Planning status of parents	
(3) Re-vaccination (5-6 years)	Date	ONE YEAR (i) Child can share the family food not hot and spiced foods. (ii) Do not wait for the baby to cut his teeth to give solid foods. He will digest well cooked vegetables, rice, suji, etc., even if he has no teeth to chew them. (iii) Wash your hands before preparing food, cooking or feeding. (iv) All food for the baby should be freshly prepared, no left-over to be given. (v) All utensils like cups, spoons bottles etc. should be washed in boiled water and kept covered.		(i) Has your child been weighed regularly? (ii) Weight will be marked on this card. (iii) Bring your child to the centre every month till his second birthday, then every three months till his fifth birthday and any time he does not appear well. (iv) Protect your child from diseases by giving him immunisations shown on this card. These services are given without payment.	
2. TUBERCULOSIS (B.C.G.)					
(1) Primary: at birth or as soon after as possible	Date				
(2) Examination of Scar	Date				
(3) Re-vaccination (5-6 years)	Date				
3. DIPHTHERIA-WHOOPING COUGH-TETANUS (Triple Vaccination)					
(1) Primary (from 4 months to 9 months) - two Doses at interval of 8-12 weeks:	Date				
(2) Booster: 1½-2 years:	Date				
(3) Booster (D.T.) 5 years:	Date				
4. POLIOMYELITIS (Oral trivalent vaccine)					
(1) Primary: from 4th month three doses by mouth at 4-6 weeks intervals	Date				
(2) Booster: One dose at 4 years	Date				
5. TYPHOID-PARATYPHOID					
(1) Two doses at 7-10 days interval (Between 1 to 1½ years)	Date				
(2) Booster: Two doses at 7-10 days interval (5-6 years)	Date				
6. DIPHTHERIA-TETANUS					
(1) Primary: when triple vaccine not given during infancy: Two injections at 8-12 weeks interval:	Date				
(2) Booster: One injection at 5 yrs:	Date				
* The doctor/nurse will record the date of giving the injection and tell you when to bring the child for the next one.					



CHAPTER 8

Health Workers; Their job responsibilities and Standing Orders

Section 8.1. INTRODUCTION

Previous sections have described the deployment of the health team and the way you work with them. It is also necessary to detail the responsibilities of each worker separately. The accounts given here are those published in the Manual for Health Workers. Delegation has also been emphasised as an essential part of organisation designed to bring MCH care to as many people as possible within the Community Development Block. Delegation requires the existence of Standing Orders guiding the practice of each health worker and giving directions for reference or calling medical aid. The principles on which Standing Orders are established are given in 8.3; they must be prepared for each team and must cover all aspects of work and types of situation. As an example, and for guidance as you work out your own, a series of Standing Orders relating to the care of mothers and children is given in this Chapter.

Section 8.2. JOB RESPONSIBILITIES OF MULTIPURPOSE HEALTH WORKERS

The job descriptions given in this section are taken from the Report on the Multipurpose Health Worker.

8.2.1. Female Health Worker

Note: Under the Multipurpose Workers Scheme, a Health Worker (Female) is expected to cover a population of 10,000, of which about 4,000 are in the intensive area and 6,000 in the twilight area. In the intensive area, she is responsible for all the activities listed and in the twilight area for maternal and child health activities on request only. As the number of workers increases the twilight areas will disappear and all the subcentre area will receive the same standard of care.

8.2.1.1. Maternal and child health

1. Register and provide care to pregnant women throughout the period of pregnancy.
2. Test urine of pregnant women for albumen and sugar and estimate haemoglobin level during her home visits and at the clinic.
3. Refer cases of abnormal pregnancy and cases with medical and gynaecological problems to the Health Assistant (Female) or the PHC.
4. Conduct about 50 per cent of total deliveries in her intensive area and **when-ever called in the twilight area.**
5. Supervise deliveries conducted by dais and assist them whenever called in.
6. Refer cases of difficult labour and newborns with abnormalities, help them to get institutional care and provide follow-up care to patients referred to, or discharged from hospital.

8.2.1.1

8.2.1.2

8.2.1.3

8.2.1.4

7. Make at least three post-natal visits for each delivery conducted in the intensive area and render advice regarding care of the mother and care and feeding of the newborn.
8. Assess the growth and development of the infant and take any necessary action.
9. Help the Medical Officer and Health Assistant (Female) in conducting MCH and family planning clinics (under fives) at the subcentre.
10. Educate mothers, individually and in groups, for better family health including MCH, family planning, nutrition, immunization, control of communicable diseases, personal and environmental hygiene and care of minor ailments.

8.2.1.2. Family planning.

1. Utilize the information from the Eligible Couples Register for the family planning programme.
2. Spread the message of family planning to the couples and motivate them for family planning individually and in groups.
3. Distribute conventional contraceptives to the couples, provide facilities and help prospective acceptors to get family planning services, if necessary by accompanying them or arranging for the dai to accompany them to PHC or hospital.
4. Provide follow-up services to female family planning adopters, identify side-effects, give treatment on the spot for side-effects and minor complaints and refer cases needing attention to the physician at the PHC or hospital.
5. Establish female depot holders, help the Health Assistant (Female) to train them, and provide a continuous supply of conventional contraceptives.
6. Build rapport with acceptors, village leaders, dais and others and utilize them for promoting family welfare programmes.
7. Identify women leaders and help the Health Assistant (Female) to train them.
8. Participate in mahila mandal meetings, and utilize such gatherings for educating women in family welfare programmes.

8.2.1.3. Medical termination of pregnancy.

1. Identify the women requiring help for medical termination of pregnancy and refer them to the nearest approved institution.
2. Educate the community on the availability of services for medical termination of pregnancy.

8.2.1.4. Nutrition.

1. Identify cases of malnutrition among infants and young children (0 to 5 years), give the necessary treatment and advice and refer serious cases to the PHC.
2. Distribute iron and folic acid tablets as prescribed to pregnant and nursing mothers, infants and young children and family planning acceptors.

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- 8.2.1.5
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- 8.2.1.9
- 8.2.1.10

3. Administer vitamin A solution as prescribed to children from 1 to 5 years.
4. Educate the community about nutritious diet for mothers and children.

8.2.1.5. Communicable diseases.

1. Identify cases of notifiable diseases, i.e. cholera, plague, poliomyelitis, and persons with continued fever or prolonged cough, or spitting of blood, which she comes across during her home visits and notify the Health Worker (Male) about them.

8.2.1.6. Immunization.

1. Immunize pregnant women with tetanus toxoid.
2. Administer BCG vaccination to all newborn infants, and DPT vaccination, oral poliomyelitis vaccine (where available) and BCG vaccine (if not given at birth) to all infants (0 to 1 year).

8.2.1.7. Dai training.

1. List dais in the intensive and twilight areas and involve them in promoting family welfare.
2. Help the Health Assistant (Female) in the training programme of dais.

8.2.1.8. Vital events.

1. Record births and deaths occurring in the intensive area in the births and deaths register and report them to the Health Worker (Male).

8.2.1.9. Record keeping.

1. Register (a) pregnant women from three months of pregnancy onwards; (b) infants from birth to one year of age; and (c) women aged 15 to 44 years; information obtained during systematic home visits in the intensive area and at the clinic.
2. Maintain the pre-natal and maternity records and child care records.
3. Assist the Health Worker (Male) in preparing the Eligible Couples Register and maintaining it up to date.
4. Prepare and submit the prescribed periodical reports to the Health Assistant (Female).
5. Prepare and maintain maps and charts for her area and utilize them for planning her work.

8.2.1.10. Primary medical care.

1. Provide treatment for minor ailments, provide first aid for accidents and emergencies, and refer cases beyond her competence to the PHC or nearest hospital.

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8.2.1.11. Team activities.

1. Attend and participate in staff meetings at PHC/Community Development Block or both.
2. Co-ordinate her activities with the Health Worker (Male) and other health workers including the dais.
3. Meet with the Health Assistant (Female) each week and seek her advice and guidance whenever necessary.
4. Maintain the cleanliness of the subcentre.
5. Participate as a member of the team in camps and campaigns.

8.2.2. Health Assistant (Female).

Note: Under the Multipurpose Workers Scheme a Health Assistant (Female) is at present expected to cover a population of 40,000 in which there are four subcentres, each with one Health Worker (Female). Each of these four subcentres has an intensive area and a twilight area.

Some of the job functions of the Health Assistant (Female) and the Health Assistant (Male) are common to both whereas others are specific.

8.2.2.1. Supervision and guidance.

1. Supervise and guide the Health Worker (Female) in the delivery of health care services to the community.
2. Strengthen the knowledge and skills of the Health Worker (Female).
3. Help the Health Worker (Female) to improve her skills in working in the community.
4. Help and guide the Health Worker (Female) to plan and organise her programme of activities.
5. Visit each subcentre at least once a week on a fixed day to observe and guide the Health Worker (Female) in her day to day activities.
6. Assess periodically the progress of work of the Health Worker (Female), and submit an assessment report to the Medical Officer of the PHC.
7. Carry out supervisory home visits in the area of the Health Worker (Female).

8.2.2.2. Team work.

1. Help the health worker to work as part of the health team.
2. Co-ordinate her activities with those of the Health Assistant (Male) and other health personnel including the dais.
3. Co-ordinate the health activities in her area with the activities of workers of other departments and agencies, and attend meetings at Block level.
4. Conduct regular staff meetings with the Health Workers in co-ordination with the Health Assistant (Male).
5. Attend staff meetings at the PHC.
6. Assist the medical officers of the PHC in the organisation of the different health services in the area.

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8.2.2.7

7. Participate as a member of the health team in mass camps and campaigns in health programmes.

8.2.2.3. Supplies, Equipment and Maintenance of Subcentre.

1. In collaboration with the Health Assistant (Male), check at regular intervals the stores available at the subcentre and help in the procurement of supplies and equipment.
2. Check that the drugs at the subcentre are properly stored and the equipment is well maintained.
3. Ensure that the Health Worker (Female) maintains her general kit and midwifery kit in the proper way.
4. Ensure that the subcentre is kept clean and properly maintained.

8.2.2.4. Records and Reports.

1. Scrutinize the maintenance of records by the Health Worker (Female) and guide her in their proper maintenance.
2. Maintain the prescribed records and prepare the necessary reports.
3. Review reports received from the Health Worker (Female), consolidate them, and submit periodical reports to the Medical Officer of the PHC.

8.2.2.5. Training.

1. Organise and conduct training for dais with the assistance of the Health Worker (Female).

8.2.2.6. Maternal and Child Health.

1. Conduct weekly MCH clinics at each subcentre with the assistance of the Health Worker (Female).
2. Respond to calls from the Health Worker (Female) and trained dais, and from the Health Worker (Male) in the twilight area and render the necessary help.

8.2.2.7. Family planning and medical termination of pregnancy.

1. Conduct weekly family planning clinics (along with the MCH clinics) at each subcentre with the assistance of the Health Worker (Female).
2. Personally motivate resistant cases for family planning.
3. Provide information on the availability of services for medical termination of pregnancy and refer suitable cases to the approved institutions.
4. Guide the Health Worker (Female) in establishing female depot holders for the distribution of conventional contraceptives and train the depot holders with the assistance of the Health Worker (Female).

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8.2.2.8. Nutrition

1. Identify cases of malnutrition among infants and young children (birth to five years), give the necessary treatment and advice and refer serious cases to the PHC.

8.2.2.9. Immunization.

1. Supervise the immunization of all pregnant women, and infants (birth to one year).

8.2.2.10. Primary Health Care.

1. Provide treatment for minor ailments, provide first aid for accidents and emergencies, and refer cases beyond her competence to the PHC or nearest hospital.
2. Attend to cases referred by the health workers and refer cases beyond her competence to the PHC or nearest hospital.

8.2.2.11. Health Education.

1. Carry out educational activities for MCH, family planning, nutrition and immunization with the assistance of the Health Worker (Female).
2. Arrange group meetings with leaders and involve them in spreading the message for various health programmes.
3. Organise and conduct training of women leaders with the assistance of the Health Worker (Female).
4. Organise and utilize Mahila Mandals, teachers and other women in the community in the family welfare programmes.

8.2.3. Male Health Worker.

Note: Under the Multipurpose Health Workers Scheme a HW (Male) is expected to cover a population of 6,000 to 7,000 wherein he will carry out the responsibilities assigned to him. He will make a visit to each family **once a month** (3.6.3).

8.2.3.1. Record Keeping.

He will:

1. Survey all the families in his area and collect general information about each village/locality in his area.
2. Prepare, maintain and utilise family records and village registers containing columns for recording particulars concerning National Malaria Eradication Programme, family planning, immunizations, vital events, environmental sanitation, other local health programmes, educational activities, services rendered and achievements, etc.

8.2.3.2

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8.2.3.6

8.2.3.2. National Malaria Eradication Programme.

1. Identify fever cases.
2. Make thick and thin blood slides.
3. Send the blood slides for laboratory examination.
4. Administer presumptive treatment.
5. Record the results of examination of blood slides.
6. Educate the community on the importance of blood smear examination for fever cases, insecticidal spraying of houses, treatment of fever cases.

8.2.3.3. National Smallpox Eradication Programme.

India is now free from Smallpox and this programme has ceased.

8.2.3.4. Family Planning.

1. List eligible couples from the family records, maintain and utilise the information for family planning programme.
2. Spread the message of family planning to the couples in his area and motivate them for family planning individually and in groups.
3. Distribute conventional contraceptives to the couples.
4. Provide follow-up services to family planning acceptors, identify side-effects, give treatment on the spot for side-effects and minor complaints and refer those cases that need attention by the physician to the PHC/Hospital.
5. Establish depot holders (male), help the HW (M) in training them, and provide a continuous supply of conventional contraceptives to the depot holders.
6. Utilise satisfied customers, village teachers, and others for promoting family planning programmes and build rapport with them.
7. Identify the male leaders in each village, and with their help educate and involve the community in health and family planning programmes.

8.2.3.5. Nutrition.

1. Identify cases of malnutrition among pre-school children (under five years of age) and refer them to Balwadis/PHC for nutrition supplements and treatment.
2. Distribute Iron and Folic Acid tablets to pregnant and nursing mothers, children under five years of age and family planning adopters as prescribed.
3. Administer Vitamin 'A' drops to children from 1 to 5 years as prescribed.
4. Educate the families about nutritious diet for mothers and children.

8.2.3.6. Immunization.

1. Administer DPT and Polio immunization to all the children from 1 to 5 years in the intensive area and for all children 0 to 5 years in the twilight area.

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2. Assist the Health Assistant (M) in school immunization programmes.
3. Educate the people in the community about the importance of immunization against the various communicable diseases.

8.2.3.7. Environmental Sanitation.

1. Chlorinate public water sources during his routine rounds.
2. Educate the community on (a) the method of disposal of liquid waste and help the community in the construction of soaking pits, kitchen gardens, etc., (b) the method of disposal of solid waste — refuse, excreta — and help the community in the provision of manure pits, compost pits, (c) home sanitation, advantages and uses of sanitary type of latrines and help them to construct latrines by demonstration.

8.2.3.8. Communicable Diseases.

1. Identify notifiable diseases like cholera, plague, polio, continued fever which he comes across during his home visits and notify them to the PHC.
2. Carry out control measures until the arrival of Health Assistant (M).
3. Educate the community about the importance of control and preventive measures against such communicable diseases.
4. Report to the Health Assistant (M) about stray dogs.

8.2.3.9. Recording Vital Events.

1. Enquire and record births and deaths occurring in the area and report them to the Health Assistant (M).
2. Educate the community on the importance of registration of births and deaths and method of registration.

8.2.3.10. Medical Termination of Pregnancy.

1. Identify the cases requiring help in medical termination of pregnancy and refer them to the nearest approved institutions.
2. Educate the mothers on the availability of services for medical termination of pregnancy.

8.2.3.11. Other responsibilities.

1. Attend staff meetings at PHC/Community Development Block or both.
2. Co-ordinate his activities with other health workers particularly HW (F).
3. (1) Maintain all records and registers and submit periodical reports in time to the Health Assistant (M).
(2) Prepare and maintain maps and charts for his area as per Standing Orders and utilise them for planning.
4. Provide treatment for minor ailments and first aid in emergencies and refer cases beyond his competence to PHC or nearest hospital.

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8.2.4. Health Assistant (Male).

Note: Under the Multipurpose Workers Scheme a Health Assistant (Male) is at present expected to cover a population of 20,000 in which there are two subcentres, each with two Health Workers (Male). Each of these two subcentres has an intensive and twilight area.

Some of the job functions of the Health Assistant (Male) and the Health Assistant (Female) are common, whereas others are specific.

8.2.4.1. Supervision and guidance.

1. Supervise and guide the Health Worker (Male) in the delivery of health care services to the community.
2. Strengthen the knowledge and skills of the Health Worker (Male).
3. Help the Health Worker (Male) to improve his skills in working in the community.
4. Help and guide the Health Worker (Male) to plan and organise his programme of activities.
5. Visit each Health Worker (Male) at least once a week on a fixed day to observe and guide him in his day to day activities.
6. Assess periodically the progress of work of the Health Worker (Male) and submit an assessment report to the Medical Officer of the PHC.
7. Carry out supervisory home visits in the area of the Health Worker (Male).

8.2.4.2. Team work.

1. Help the health workers to work as part of the health team.
2. Co-ordinate his activities with those of the Health Assistant (Female) and other health personnel.
3. Co-ordinate the health activities in his area with the activities of workers of other departments and agencies, and attend meetings at Block level.
4. Conduct regular staff meetings with the health workers in co-ordination with the Health Assistant (Female).
5. Attend staff meetings at the PHC.
6. Assist the medical officers of the PHC in the organisation of the different health services in the area.
7. Participate as a member of the health team in mass camps and campaigns in health programmes.

8.2.4.3. Supplies and Equipment.

1. In collaboration with the Health Assistant (Female) check at regular intervals the stores available at the subcentre and indent for and procure the supplies and equipment in good time.
2. Check that the drugs at the subcentre are properly stored and that the equipment is well maintained.
3. Ensure that the Health Worker (Male) maintains his kit in the proper way.

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- 8.2.4.7
- 8.2.4.8
- 8.2.4.9

8.2.4.4. Records and Reports.

1. Scrutinise the maintenance of records by the Health Worker (Male) and guide him in their proper maintenance.
2. Maintain the prescribed records and prepare the necessary reports.
3. Review reports received from the Health Worker (Male), consolidate them, and submit periodical reports to the Medical Officer of the PHC.

8.2.4.5. Malaria.

1. Give radical treatment to all cases when blood smears are positive for malaria.
2. Supervise the spraying of insecticides during focal spraying.

8.2.4.6. Communicable diseases.

1. Be alert to the sudden outbreak of epidemics of diseases such as plague, diarrhoeal diseases or poliomyelitis, and take all the necessary remedial measures.
2. Take the necessary control measures when any notifiable disease is reported to him.
3. In cases with continued fever, or prolonged cough, or spitting of blood, take sputum smears and send them to the PHC for investigation.
4. Carry out the destruction of stray dogs.

8.2.4.7. Environmental sanitation.

1. Help the community in the construction of:
 - (a) soakage pits; (b) kitchen gardens; (c) manure pits; (d) compost pits; (e) sanitary latrines; (f) smokeless chulas; and supervise their construction.
2. Supervise the chlorination of water sources including wells.

8.2.4.8. Immunization.

1. Conduct immunization of all school-going children with the help of the Health Worker (Male).
2. Supervise the immunization of all children from 1 to 5 years.

8.2.4.9. Family Planning.

1. Personally motivate resistant cases for family planning.
2. Guide the Health Worker (Male) in establishing male depot holders for the distribution of conventional contraceptives and train the depot holders with the assistance of the Health Worker (Male).

8.2.4.10

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8.2.4.12

8.2.4.13

8.2.4.10. Nutrition.

1. Identify cases of malnutrition among infants and young children (birth to five years), give the necessary treatment and advice and refer serious cases to the PHC.

8.2.4.11. Vital Events.

1. Report the births and deaths occurring in his area to the Medical Officer of the PHC.

8.2.4.12. Primary Health Care.

1. Provide treatment for minor ailments, provide first aid for accidents and emergencies, and refer cases beyond his competence to the PHC or nearest hospital.
2. Attend to cases referred by the health workers and refer cases beyond his competence to the PHC or nearest hospital.

8.2.4.13. Health Education.

1. Carry out educational activities for control of communicable diseases, environmental sanitation, MCH, family planning nutrition, immunization and the need for registration of vital events.
2. Arrange group meetings with leaders and involve them in spreading the message for various health programmes.
3. Organise and conduct training of community leaders with the assistance of the Health Worker (Male).

Section 8.3. STANDING ORDERS RELATING TO MCH/FP

8.3.1. Principles.

Delegation is not possible without Standing Orders. Delegation is necessary because it enables you to enlarge the range of your work and that of the health team. Standing Orders are therefore required. Standing Orders will vary from place to place and must be prepared for each team. Those included here are examples only; they are not complete. You must work out your own with your colleagues and other members of the health team according to the following:

1. Standing Orders must reflect and cover the health needs of the Community Block and the practice of the health workers.
2. They must be precise, short, easily understood, written in language familiar to the workers who will use them.
3. They must give clear directions to the health workers about the treatments they can use and the points at which they must seek aid or refer the patient for treatment.
4. Periodic reviews to test the workers understanding and implementation of the Orders are required.
5. All Standing Orders must be subject to periodic review in terms of recent developments on:
 - (a) Dosage, use, contra-indications for drugs
 - (b) Adverse drug effects
 - (c) Changes in trade names
 - (d) Government directives
 - (e) As experience is gained.

For technique of writing see 6.4.6.

8.3.2
8.3.2.1
8.3.2.2
8.3.2.3

8.3.2. General complaints and conditions in mothers and children.

8.3.2.1. Fever.

- Symptoms:** 1. Skin hot and red.
2. Temperature 37.7°C – 39.4°C (100°F – 103°F).
3. Child flushed, irritable, crying.
- Check:** For convulsions in young child.
Fever above 39.4°C (103°F) – refer immediately.
- Treatment:** 1. For children: Paed. Aspirin.
0–1 ½ tab twice daily; 1–3 ½ tab four times daily; 3–5 1 tab three times daily.
Increase fluids; tepid sponge. If no improvement in twenty-four hours, refer to doctor.
2. Older children: 5–15 Aspirin 1 tab three times daily.
Increase fluids. Refer after twenty-four hours if no improvement.
3. Adults: Aspirin 2 tabs three times daily.
If no improvement after forty-eight hours, refer to doctor.

8.3.2.2. Anaemia (Pallor) in women.

N.B. The FHW (ANM) may not give Iron and Folic Acid tabs to women, except in pregnancy or the puerperium, unless they have been seen by a doctor.

- Symptoms:** 1. Weakness and fatigue.
2. Gets easily tired.
3. Pale, conjunctiva, skin and nails.
4. Breathlessness, listless, anorexia.
5. Numbness of hands and feet.
6. Puffiness of face.
- Check:** 1. Find onset and duration.
2. Excessive loss of blood during periods or abortions.
3. Bowel habits and use of fields.
4. Haemoglobin.
5. Examination of blood.
6. Examination of stool.
- Treatment:** If pregnant
1. Give Fersolate and Folic Acid tablets TDS after food.
2. Advise on diet rich in Iron and protein.
3. Severe cases, reassure, prepare family for hospitalisation.
4. Refer physician immediately.
5. For mild cases, refer physician at routine visit.

8.3.2.3. Sinking Feeling (with irregular pulse) (Syncope).
Complaint of women.

- Symptoms:** 1. A feeling of 'missing heart beats' without cyanosis or chest pain.
2. Patient not ill.

8.3.2.3

8.3.2.4

8.3.2.5

- Check:
1. Find out onset, duration; frequency of such complaints if patient gives previous history.
 2. Observe colour of skin.
 3. Find out about dietary intake, check pulse, respiration and BP.

- Treatment:
1. Advise rest.
 2. Advise on protein and Vitamin rich diet.
 3. Give multi Vit. & Vit.B complex tablets BD.
 4. If pulse rate below 70 or above 120, refer to physician immediately, otherwise refer to physician if no improvement within forty-eight hours.

- Symptoms:
1. A feeling of 'missing heart beats' without cyanosis or chest pain — if patient ill.
 2. Associated with cold, clammy skin, chest pain, nausea and vomiting.

- Check:
1. Take history.
 2. Check volume, tension and rate of pulse, respiration and BP.

- Treatment:
1. Be calm.
 2. Prepare family for hospitalisation and about seriousness of patient's condition.
 3. Refer immediately to the nearest hospital or health centre or send for physician whichever is quickest. If latter await doctor's arrival.

8.3.2.4. Convulsions in women.

- Symptoms:
1. Jerking of limbs, twitching of muscles.
 2. May be one or both sides of body.
 3. Loss of consciousness.

- Check:
1. Fever.
 2. Injury in the previous fifteen days; tight jaw muscles.
 3. Pregnancy.
 4. History, previous attacks, neck stiffness, paralysis, temperature, pulse.

- Treatment:
1. Place on side and keep from injury.
 2. Place cloth-wrapped spoon in mouth to prevent tongue biting.
 3. **Do not** give fluids while unconscious.
 4. Refer PHC unless fit stops and is not repeated.

8.3.2.5. Backache in women.

- Symptoms:
1. Pain in back; may go down back of legs.
 2. May occur after lifting.
 3. Onset sudden.

- Check:
1. Relationship to menses.
 2. Any vaginal discharge.
 3. Any prolapse.

8.3.2.5

8.3.2.6

8.3.2.7

- Treatment:
1. Rest; hard bed (floor) for sleeping.
 2. Rub with Lin. Methyl Salicylate three times daily, muscle spasm may be present.
 3. Apply heat to painful area.
 4. Aspirin for pain if no gastro-intestinal symptoms.
 5. Refer to PHC if pain goes into legs or no relief after three days.

8.3.2.6. Allergy and Urticaria in women or children.

Three degrees of severity.

1. Symptoms:
1. Local or generalised rashes.
 2. Urticaria.
 3. Swellings with itching.

Check: History of dietary and drug intake and history of allergies in the family.

- Treatment:
1. Forbid items of known allergies.
 2. Give the antihistamine available TDS according to age.
 3. Demonstrate application of Lotion Calamine.
 4. Refer to physician if no improvement within twenty-four hours.

2. Symptoms:
1. Associated with mild asthma and cough.
 2. "Hives" localised.
 3. Eyes swollen.
 4. Rash all over the body.

Check: Take history of dietary and drug intake and history of allergies in the family.

- Treatment:
1. Forbid items of known allergies.
 2. Prepare for PHC, possible hospital.
 3. Refer to physician immediately.

3. Symptoms:
1. Associated with severe respiratory distress and near collapse.
 2. Tachycardia.

Check: Find out duration and intake of drugs.

- Treatment:
1. Reassure patient and family.
 2. Prepare for hospitalisation.
 3. Prop patient up to relieve respiratory distress.
 4. Give antihistamine immediately.
 5. Refer to physician immediately.

8.3.2.7. Shock.

- Symptoms:
1. Commonly occurs in conditions associated with severe pain, haemorrhage, injury and accidents or in dehydration or after injection of certain drugs like Inj. Penicillin.
 2. Patient pale, cold and clammy and apprehensive.
 3. May lapse to unconsciousness.
 4. Pulse weak in volume and tension and thready.
 5. Blood pressure falls below 80 systolic — loss of bladder control.

8.3.2.7
8.3.2.8
8.3.2.9
8.3.2.10

- Check:**
1. Record pulse, respiration and blood pressure.
 2. Pregnancy.
 3. Vaginal discharge or bleeding.
- Treatment:**
1. Reassure family.
 2. Prepare for immediate hospitalisation.
 3. Maintain clear airway if unconscious and treat as for unconsciousness.
 4. If conscious give hot drinks if no abdominal pain.
 5. Refer to physician or hospital immediately.

8.3.2.8. Severe anaemia in children.

- Symptoms:** Pallor, shortness of breath on exertion, may be swelling of feet.
- Check:**
1. Hb if possible.
 2. Hookworm; bruising; nutrition.
 3. Size of liver and spleen.
- Treatment:** Iron and Folic Acid tablets.
- | | |
|----------------|-----------------------------|
| <1 year, ½ tab |] twice daily for one month |
| >1 year, 1 tab | |
- If bruising or big liver or spleen refer PHC immediately.

8.3.2.9. Children with malnutrition (starvation)

- Symptoms:**
1. Child small, whining, prominent ribs, thin legs and arms, dry skin, brittle skin and hair.
- Check:**
1. Weight, lower than 60 per cent of standard on chart.
 2. Signs of growth failure, wasting of fat and muscle, signs Vitamin deficiencies.
 3. Stool examined for hookworm.
 4. Signs of infection including tuberculosis.
- Treatment:**
1. Inform mother of quantity of food necessary.
 2. Try to see it is available and given to child.
 3. Child attend nutrition centre or entered into nutrition programme.
 4. Look for any infection including TB.
 5. Refer to PHC or next visit doctor.

8.3.2.10. Tuberculosis in adults.

- Symptoms:**
1. Cough — longer than one month.
 2. Sputum usually present; may be blood in sputum.
 3. Weight loss.
 4. Loss of appetite.
 5. Evening rise of temperature.
 6. May have night sweats.
- Check:**
1. Family contacts for case finding.
 2. BCG for young children and neighbours.

8.3.2.11

8.3.2.12

8.3.2.13

- Treatment:
1. Refer (with family members) to doctor at next clinic.
 2. After diagnosis, 2 years of regular treatment is required.
 3. Follow-up with regular monthly visit to home.

8.3.2.11. Malaria.

- Symptoms: Fever with rigors.
- Check:
1. Consciousness.
 2. Blood in urine.
 3. Enlarged spleen.
- Refer:
1. For diagnosis and treatment.
 2. Tell MHW for village.

8.3.2.12. Poisoning.

- Symptoms:
1. History of taking some poison.
 2. Accidental or a suicide attempt.
- Check:
1. Any evidence of the type of poison: labels, prescriptions, empty bottle or remaining fluid.
 2. Consciousness of patient.
- Treatment:
1. If within half hour and conscious, give one teaspoon salt in glass of water to drink to cause vomiting.
 2. If more than half hour and conscious, give glass of warm milk.
 3. If unconscious, send immediately to hospital.
 4. If kerosene, oil, Tik 20, mushrooms, refer quickly.
 5. When referring, send any evidence of poison.

8.3.2.13. Painful menses.

- Symptoms: Pain in lower abdomen, sometimes in back, also before and during menses.
- Treatment:
1. Rest at time of pain.
 2. Tab Aspirin, two, may be repeated in four hours.
 3. Warmth (hot cloth or wrapped bottle) to abdomen.
 4. Avoid constipation.

8.3.3. External Injuries and Wounds.

8.3.3.1. Wounds (small).

- Symptoms:** 1. Scratch with slight bleeding.
2. No infection.
- Treatment:** 1. Clean with soap and water or Eusol.
2. Apply pressure to stop bleeding.
3. Apply Acriflavin Lotion and dressing.

Wounds (large).

- Symptoms:** 1. Wound greater than 4cm.
2. Underlying tissues can be seen.
- Check:** 1. Time of injury.
2. Note whether tetanus toxoid given previously.
- Treatment:** 1. Clean with soap and water or Eusol.
2. Apply clean dry dressing.
3. Refer for suturing.

Wounds (puncture).

- Symptoms:** 1. Wound made by nail, thorn or needle.
- Check:** Time of injury and presence of infection.
- Treatment:** 1. Clean with soap and water or Eusol.
2. Apply Acriflavin Lotion and dressing.
3. Tetanus Toxoid 0.5ml given if available.
4. Refer if no signs of healing in three days.

Wounds (infected).

- Symptoms:** 1. Broken skin with pus, tenderness and red area. May be swelling.
2. Fever may be present.
- Treatment:** 1. Clean with soap and water or Eusol.
2. Hot wet salt soaks twice daily and dressing.
3. Aspirin for pain; Paed. Aspirin 0—1 year ½ tab twice daily; 1—3 years ½ tab four times daily; 3—5 years 1 tab three times daily. Adults 2 tabs three times daily.
4. For adults only: Sulphadimidine 2 tabs TDS for 5 days.
5. If general disturbance of health refer to physician.

8.3.3.2. Accidents with Multiple or Head Injuries (adult or child).

- Symptoms:** 1. Patient shocked.
2. May be unconscious.
3. May be bleeding.
- Check:** 1. For bleeding — stop and control.
2. Then check pulse each fifteen minutes.
3. Arrange movement to hospital, carefully but quickly.
4. **Time counts.**

8.3.3.3. Bites (insect, bee or scorpion).

- Symptoms: 1. History of 'fly', wasp or bee bite.
2. Redness, pain and swelling.
3. Sometimes generalised rash with difficulty in breathing.
- Check: Generalised swelling, difficulty in breathing, asthma or rash.
- Treatment: 1. Give Antihistamine; 6–15 years $\frac{1}{2}$ tab, adults 1 tab.
2. Cold soaks.
3. Aspirin for pain; 0–3 years Paed. Aspirin $\frac{1}{2}$ tab TDS;
3–5 years Paed. Aspirin 1 tab TDS, 6–15 years Adult Aspirin 1 tab TDS. Adults 2 tabs.
4. If difficulty in breathing or asthma, refer immediately.
5. If trained, in scorpion stings, local infiltration 2 per cent solution Lignocaine.

Bites (snake).

- Symptoms: 1. History of snake bite.
2. Teeth pattern, severe pain and bluish swelling.
3. Check for tachycardia, is patient apprehensive?
- Treatment: 1. Reassure patient, keep quiet and calm; wipe wound to get rid of excess poison.
2. Apply tourniquet above wound.
3. See skin below tourniquet is blue not white.
If 3 (above), suck out excess poisoning only if you have no open wound in your mouth. Disinfect site of bite with Savlon, Carbolic or Iodine.
4. Send to hospital.

Bites (dog or other animal).

Minor:

- Symptoms: 1. Bite on legs.
2. One bite from healthy dog.
- Treatment: 1. Wash thoroughly with soap and water or Savlon.
2. Apply Acriflavin in spirit and dressing.
Do not seal; give 0.5ml Tetanus Toxoid.
3. Refer to doctor.
4. Observe dog but **do not kill**.

Severe:

- Symptoms: 1. Extensive bites; arms, neck, head.
2. Heavy bleeding.
- Treatment: 1. Apply pressure to stop bleeding.
2. Clean thoroughly with soap and water or Savlon.
3. Apply light bandage.
4. Give 0.5ml Tetanus Toxoid.
5. Refer to hospital immediately.
6. Observe dog or animal but **do not kill**.

N.B. All bites from unknown dog or other animal behaving abnormally must be referred to a hospital for possible anti-rabies serum.

8.3.3.4. Burns.

- Symptoms: 1. In children usually on hands or legs. Skin red, painful and may have blisters.
2. In extensive burns shock may develop.
- Treatment: 1. If area is small, apply Acriflavin lotion and dry dressing; do not rupture blisters.
2. If large, cold wet dressing and refer.
3. Advise lots of fluids and Electrolyte solution by mouth; give as much as possible.
4. Aspirin for pain as in wounds.
5. If wound is oozing cover with Vaseline gauze.
6. If extensive send to PHC.

8.3.3.5. Fractures and Dislocations.

- Symptoms: 1. Pain.
2. Immobility of part and deformity.
- Check: Skin intact.
- Treatment: 1. Make patient as comfortable as possible by preventing movement of injured parts. Do not reduce the fracture.
2. Apply splinting to reduce movement if possible to joint above and below the fracture. Sling for arm dislocation. Ankle on pillows. Aspirin.
3. To hospital as soon as possible.

8.3.4
8.3.4.1
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8.3.4.3

8.3.4. Skin conditions.

8.3.4.1. Boils.

- Symptoms: 1. Painful, itchy spot.
2. Raised, tender, red, warm swelling, often black core.
3. Often on scalp, thighs, legs and buttocks.
4. May be oozing pus.
5. Frequent in monsoon season.
- Treatment: 1. If skin is intact, apply Magnesium Sulphate and Glycerine paste dressing twice daily or hot compresses.
2. When boil bursts use Eusol or salt soaks twice daily till 'core' has separated.
3. Then apply dry dressing.
4. Bathe daily with soap and water and teach hygiene.
5. Sulphadimidine: under 3 years $\frac{1}{2}$ tab six hourly for 5 days; 3—5 years 1 tab, 6—15 years 2 tabs, over 16 years 2 tabs, at all ages 3 times daily for 5 days. Give plenty of fluids.

8.3.4.2. Rash (Toxic or Urticarial).

- Symptoms: 1. Raised, itchy red patches.
2. Person usually does not look ill.
- Check: 1. Fever (if present, consider diseases like measles).
2. History of taking drugs, Penicillin, Sulpha, etc.
3. Weed or flower contact.
- Treatment: 1. Cool water will reduce the itch.
2. If a drug suspected, stop at once.
3. Apply Calamine lotion after cool water bath.
4. For adults: Antihistamine 1 tab twice daily.

8.3.4.3. Impetigo.

- Symptoms: 1. Whitish-yellow blisters, sores or scabs, on face, hands or feet.
2. Watery discharge comes from the sores and spreads forming new sores.
3. Often starts about the mouth.
- Treatment: 1. Treat everyone in the family who has sores.
2. Soak and remove crusts with cotton soaked in Potassium Permanganate or Savlon.
3. Apply Gentian Violet 2 per cent water solution.
4. Bath with soap and water daily.
5. Avoid rubbing and scratching.
6. Sulphadimidine: Under 3 years $\frac{1}{2}$ tab six hourly for five days; 3—5 years 1 tab; 6—15 years 2 tabs; over 16 years 2 tabs, at all ages 3 times daily for 5 days. Give plenty of fluids with this drug.
7. If no improvement in five days, refer to doctor.

8.3.4.4

8.3.4.5

8.3.4.6

8.3.4.4. Scabies.

- Symptoms:**
1. Itching, burrows, some ending in tiny blisters, scabs with scratching.
 2. Areas between fingers, palms, inner surface of wrists, armpits, waist, scratch marks on body — also sometimes urticarial rash.
 3. Worse at night.
 4. Other family members may have the same rash.
- Check:** Fever or skin infections.
- Treatment:**
1. Treat all family at same time.
 2. Bath with soap and water rubbing skin vigorously.
 3. Apply Benzyl Benzoate to whole of body except face. Sulphur ointment to face.
 4. Repeat Benzyl Benzoate for two more days but no bath.
 5. On fourth day, bath with soap and water and put on clean clothes.
 6. All clothing and bedding must be washed and put in sun to dry for at least two hours. DDT powder may be used.
 7. If fever and pus in skin sores, treat sepsis first.
 - a. Eusol soaks daily until clear.
 - b. Treat with Benzyl Benzoate as before.
 - c. Sulphadimidine (for any skin infection);
under 3 years $\frac{1}{2}$ tab six hourly for five days; 3–5 years 1 tab,
6–15 years 2 tabs, over 16 years 2 tabs, at all ages 3 times
daily for 5 days.
Give plenty of fluids.

8.3.4.5. Lice.

- Symptoms:**
1. Itching on scalp, armpits or pubic region.
 2. Lice or nits in hair (or found on clothing).
- Treatment:**
1. Treat whole family at the same time.
 2. Lotion Benzyl Benzoate 10 per cent applied to all hairy parts at bedtime, or DDT powder mixed in coconut or other oil, kerosene, oil equal parts.
 3. Wash thoroughly in the morning.
 4. Wash all clothing and bedding and brushes and combs in the morning, dry in the sun.
 5. Repeat treatment after five days if lice still present.

8.3.4.6. Dad (Ringworm)

- Symptoms:**
1. Small circular raised patches, pink colour, scaly centre heal leaving red ring.
On head, small bald circles surrounded by dull broken hair.
 2. Often on skin of face or lower extremities. Marked itching, on scratching watery fluid exudes.
- Check:**
1. For secondary infection
 2. Siblings, and treat if necessary.

8.3.4.6

- Treatment:
1. Whitfields ointment (Benzoic Acid Compound ointment) for five days. No soap during treatment.
 2. Apply Gentian Violet three times daily for two days then Whitfields ointment for five days.
 3. If septic infection in skin then Sulphadimidine with Vit.C and plenty of fluids. If no improvement in seven days refer physician.

8.3.5.5

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Treatment: Vitamin A & D, refer to PHC or ask physician to see.

8.3.5.6. Bitot's Spot.

Symptoms: 1. Roughened raised area on conjunctiva.
2. Mother often applies 'Kajal' to spot and it sticks leaving a black stain.

Check: 1. History of night blindness.
2. Fats and oils in diet.

Treatment: 1. As above.
2. Refer physician at next clinic.

8.3.5.7. Keratomalacia.

Symptoms: 1. Cornea dull, wrinkled and white.
2. Child dislikes light and may keep eyes closed. Eyes water constantly.

Treatment: Send to PHC medical officer immediately.

8.3.5.8. Trachoma.

Symptoms: 1. Red and watering eyes, photophobia.
2. Follicles appear on conjunctivae of both lids.

Check: 1. For follicles.
2. Examine other members of family.

Treatment: 1. Teach irrigation, make family do it regularly.
2. Use Ung. Terramycin Ophthalmic three times daily.
3. Let physician see at next clinic or send if no improvement in three days.

8.3.5.9. Blurred Vision.

Symptoms: Patient complains of blurring and hazy vision, pain.

Check: 1. For cataract.
2. Check BP and pulse (may occur in retinal haemorrhage).
3. Pain present in glaucoma.
4. Physician should see as soon as possible.

8.3.6
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8.3.6. Ear, Nose and Mouth.

8.3.6.1. Pain in ear (mild).

- Symptoms:** Mild pain with no fever and no discharge.
- Check:** Ear for discharge or wax.
- Treatment:** 1. Boroglycerine ear drops three times daily.
2. Aspirin: 6—15 years ½ tab twice daily, adult 1 tab twice daily.

Pain in ear (discharge)

- Symptoms:** Pain, with pus, pus and blood or clear discharge.
- Check:** 1. Fever and pulse.
2. Swelling behind ear.
- Treatment:** 1. If skin around ear is red and sore clean with soap and water or Savlon.
2. Refer to PHC. Do not put drops inside the ear or clean the inner ear.
3. If patient cannot see physician then treat with Sulphadimidine, seven days.

Pain in ear (fever).

- Symptoms:** 1. Fever over 100°F.
2. Severe pain in ear or behind ear.
- Treatment:** Refer to PHC immediately.

8.3.6.2. Ear discharge (without pain).

- Symptoms:** 1. Discharge from ear.
2. May be irritating.
3. Usually long-standing.
- Treatment:** 1. Borospirit ear drops three times daily.
2. Refer to next clinic.

8.3.6.3. Foreign body in ear.

- Symptoms:** History of block or irritation in ear.
- Check:** For insects. Look and if seen instil Liquid Paraffin. If other object, e.g. small stone, send to PHC.

8.3.6.4. Nose bleed.

- Symptoms:** Blood from one or both nostrils.
- Check:** 1. History of nose picking or local injury.
2. Head injury.
- Treatment:** 1. Pressure to nostrils for five minutes.
2. Cold packs to nose and forehead.
3. If bleeding profuse or continues for longer than one hour, send to hospital.

8.3.6.5

8.3.6.6

8.3.6.5. Foreign body in nose.

- Symptoms: 1. History of foreign body in nose.
 2. Pus or blood from one nostril.
 3. Nostril blocked.
 4. Pain and swelling on one or both sides of nose.
- Treatment: 1. Refer to PHC immediately after cleaning nose and instilling drops.
 2. Do not attempt removal of foreign body.

8.3.6.6. Toothache.

- Symptoms: 1. Pain in teeth.
 2. May have dark holes in tooth or white teeth.
 3. Gums near the painful teeth may be red, swollen and tender.
- Check: 1. Signs of infection — fever, swelling, tender jaw.
- Treatment: 1. Bite on cloves with painful teeth.
 2. Aspirin for pain.
 3. If infected, Sulphadimidine.
 4. Refer to dentist or PHC.

8.3.7. Affections of the Respiratory Tract.

8.3.7.1. Difficulty in breathing.

1. Symptoms: Choking after food with wheezing and distress.

Check: Food in mouth or back of throat.

Treatment: 1. If child, turn patient upside down, hold by legs, slap back to allow foreign body to be coughed up.
2. If not effective then PHC.
3. If adult, bend head forward and chest down and slap on the back.
4. If not effective then PHC.

2. Symptoms: Wheeze and tachycardia.

Check: 1. Count pulse and respiration.
2. Look for cyanosis.

Treatment: 1. Aminophylline or tabs Ephedrine.
2. Sit patient up, if not eased then refer to PHC.

3. Symptoms: With anaemia.

Check: 1. Degree of activity; oedema; dyspnoea on exertion.
2. Count respiration and pulse; haemoglobin.

Treatment: 1. If haemoglobin more than 5g, Iron rich diet, treat Folic Acid and Iron.
2. If haemoglobin less than 5g refer to PHC.

4. Symptoms: With chest pain, cyanosis, cough, struggle for breath.

Check: 1. Count pulse and respirations.
2. Look for cyanosis.

Treatment: 1. Prop up patient; give Aminophylline.
2. Refer immediately.

8.3.7.2. Common cold.

Symptoms: 1. Watery discharge from the nose.
2. Watery eyes.
3. Sneezing and cough.
4. Sore throat.
5. Headache and body aches.

Treatment: 1. Rest in bed with plenty of fluids.
2. Aspirin: Paed tabs 0-1 year $\frac{1}{2}$ tab twice daily;
1-3 years $\frac{1}{2}$ tab four times daily, 3-5 years 1 tab three times daily; Adult tabs 6-15 years 1 tab three times daily, adults 2 tabs three times daily; all for five days.
3. Cough mixture: less than 6 months $\frac{1}{4}$ teaspoon eight hourly or honey; 6 months-5 years $\frac{1}{2}$ teaspoon eight hourly or honey, 5-8 years 1 teaspoon three times daily, 6-15 years 1 teaspoon three times daily; adults 2 teaspoons three times daily; all for five days.

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4. Adults only: Antihistamine 1 tab twice daily for five days.
5. Adults only: for nasal congestion Ephedrine nose drops 6 drops each nostril three times daily. Inhalation daily for three days.

8.3.7.3. Sore throat (slight).

- Symptoms: 1. Pain on swallowing.
 2. Slight redness of throat.
- Check: Fever.
- Treatment: 1. Gargle with warm salt water three times daily.
 2. Aspirin as for Common cold.
 3. Adults only: Throat lozenges 1 three times daily, Mandl's throat paint three times daily.

Sore throat (severe).

- Symptoms: 1. Pain on swallowing.
 2. Flaming red throat and tonsils.
 3. Pus on tonsils.
- Check: Evidence of diphtheria: whitish grey coating on tonsils, difficulty in breathing.
- Treatment: 1. As above.
 2. Urge fluids.
 3. Adults only: Sulphadimidine 2 tabs three times daily for 5 days.
 4. If cough present, Cough Cure as for Common cold.
 5. Refer to doctor:
 a. if no improvement;
 b. if repeated more than once a month;
 c. if joint pain and fever.

8.3.7.4. Cough (simple).

- Symptoms: Simple, dry cough.
- Treatment: 1. Cough Cure, dosage as for Common cold.
 2. Avoid smoking.

Cough (fever).

- Symptoms: 1. cough and fever.
 2. May have signs of pneumonia.
 a. difficult breathing;
 b. in adult rapid breathing more than 20 per minute;
 c. nose movement with breathing;
 d. blue colour may be present.
- Treatment: 1. For children refer immediately to hospital.
 2. For adults: Cough mixture 2 teaspoons three times daily for three days. Aspirin 2 tabs three times daily for three days.
 3. Refer if no improvement in three days.

Cough (prolonged).

- Symptoms:**
1. Cough for more than a month.
 2. With or without sputum.
- Check:**
1. Family history of tuberculosis, weight loss and fever.
 2. Blood in sputum.
- Treatment:**
1. Cough mixture, as above.
 2. Tell patient to stop smoking.
 3. Refer to doctor at next clinic (sputum test).

N.B. In any case of cough, when there is no improvement after taking a Cough Mixture for three days, change to Mist Ammonium Carbonate. Same dosage as for Cough Mixture.

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8.3.8. Abdominal complaints and symptoms.

8.3.8.1. Vomiting (more than twice).

- Symptoms: 1. Vomiting more than twice.
2. Patient does not look very sick.
- Check: 1. If small child: dehydration.
2. Abdominal pain.
- Treatment: 1. Light diet and plenty fluids.
2. Adults: Promethazine 1 tab twice daily while vomiting lasts.

Vomiting (severe).

- Symptoms: 1. Projectile vomiting, or
2. Repeated severe vomiting, or
3. Stomach pain, or
4. Dark brown or red vomitus.
- Check: Shock.
- Treatment: 1. Give nothing by mouth.
2. Refer quickly to PHC or hospital.

8.3.8.2. Abdominal pain (mild).

- Symptoms: 1. Mild pain, may be intermittent.
2. Patient does not look sick.
3. No vomiting or abdominal distension.
4. May be present before meals.
- Check: History of passage of worms.
- Treatment: 1. History of worms, refer to PHC.
2. Children, refer to PHC.
3. Adults, Mist Mag. Trisilicate 2 teaspoons four times daily for five days.

Abdominal pain (severe).

- Symptoms: 1. Moderate to severe griping pain.
2. Vomiting.
3. No stool.
4. Distension of abdomen.
5. May have fever.
- Treatment: 1. Do not give anything by mouth.
2. Refer immediately to doctor — PHC.

8.3.8.3. Diarrhoea (mild).

- Symptoms: 3—6 stools for more than three days.
- Check: 1. Dehydration: dry tongue, skin stands up after pinching, depressed fontanelles, sunken eyes.
2. Fever.
3. Worms.
4. Weight loss in children

- Treatment:**
1. Electrolyte solution. Boiled water or home-made Electrolyte solution; give undiluted as much as child will take.
 2. Give plenty fluid. If on breast milk, continue.
 3. Insist on cleanliness of food and proper disposal of stools.
 4. If no improvement, refer to doctor at PHC.

Diarrhoea (severe).

- Symptoms:**
1. 6 or more loose, watery stools in twenty-four hours.
 2. No fever, vomiting or blood in stool.

Check: Dehydration as above.

- Treatment:**
1. As above. As much oral fluid as possible.
 2. Visit patient or see again in twelve hours.
 3. If worse, refer to PHC or hospital immediately.
 4. If no worse, advise to return the next day.
 5. For adults, Mist. Kaolin 15ml four times daily for five days.

Diarrhoea (blood and mucus).

- Symptoms:**
1. Mucus or blood in stools.
 2. Gripping pain.
 3. Tenesmus.

Check: Dehydration as above.

- Treatment:**
1. As above for children and refer to doctor at once.
 2. For adults: Mist. Kaolin 15ml four times daily for five days. Sulphasalazine 2 tabs four times daily for five days or other Sulphonamide in appropriate dosage.

Diarrhoea (vomiting).

- Symptoms:** Vomiting more than once.

Check: Dehydration as above.

- Treatment:**
1. For children: as above and refer to PHC immediately.
 2. For adults: as above and Promethazine (Avomine) 1 tab twice daily as long as vomiting lasts.

8.3.8.4. Constipation.

- Symptoms:**
1. No stool for two or three days.
 2. Lack of appetite.

Check: Abdominal pain, vomiting and distension.

- Treatment:**
1. Milk of Magnesia 3 teaspoons at night until normal stool passed.
 2. Plenty of fluids and green vegetables.
 3. If abdominal pain and vomiting or distension, refer immediately to PHC.

8.3.8.5

8.3.8.6

8.3.8.5. Jaundice.

- Symptoms: 1. Yellow skin and sclerae.
 2. Loss of appetite, may be nausea.
 3. Weakness.
- Check: 1. Fever.
 2. Vomiting and diarrhoea.
 3. Pregnancy.
- Treatment: 1. Rest.
 2. Avoid fats and spices.
 3. Increase fluids.
 4. Multivitamin 1 tab each day for adults.
 5. Refer if fever, vomiting, diarrhoea, pregnant or elderly.

8.3.8.6. Roundworms

- Symptoms: None; seen in faeces.
- Treatment: One dose Piperazine at night, children to 6 years 2g, 6–12 3g;
 adults 4g. Tabs crushed and given with honey, jaggery or sugar
 in a single dose.

8.3.9
8.3.9.1
8.3.9.2
8.3.9.3

8.3.9. Acute Infective Illnesses of Children.

8.3.9.1. Measles.

- Symptoms:**
1. Fever, cough, runny nose for 2–4 days.
 2. Rash — small, red, blotchy, giving the skin a rough feeling. Begins behind ears, hairline then trunk and face.
 3. Red eyes, child dislikes light and prefers the dark.
 4. Other children often ill 10–14 days after or before.
- Check:**
1. Signs of pneumonia.
 - a. increased fever; b. rapid breathing.
 - c. more movement in breathing.
 2. Pain in ears.
 3. Fits.
- Treatment:**
1. Plenty of fluid, continue to give child food.
 2. Aspirin for fever: Paed tabs 0–1 year $\frac{1}{2}$ tab twice daily; 1–3 years $\frac{1}{2}$ tab four times daily, 3–5 years 1 tab three times daily; adult tabs 6–15 years 1 tab three times daily.
 3. If pain in ears — refer to PHC.
 4. If signs of pneumonia — refer to PHC.

8.3.9.2. Rubella (German measles).

- Symptoms:**
1. Low grade fever.
 2. General malaise.
 3. Slight headache and stiff neck with enlargement of posterior cervical glands.
 4. Copper coloured or pink rash — smaller than measles — over face, body and arms to legs.
- Check:**
1. Pregnancy in women in contact.
 2. Distribution and type of rash.
 3. Enlargement of posterior cervical glands.
 4. Temperature, pulse and respiration.
- Treatment:**
1. If pregnancy in patient or contact is confirmed and German measles suspected, explain effects on foetus and refer to physician immediately for consideration of M.T.P.
 2. Give Aspirin for symptomatic relief.
 3. Stress importance of control of spread of infection.
 4. Give realistic advice, keeping in mind that the incubation period is from 14–21 days.
 5. Advise plenty of fluids.

8.3.9.3. Chickenpox.

- Symptoms:**
1. Mild beginning without fever.
 2. Rash appears on first or second day on covered parts of body: underarms then hands and legs. Small raised red spots become watery blisters and then crusts.
 3. All stages of rash are present at one time.

8.3.9.3

8.3.9.4

8.3.9.5

8.3.9.6

4. Other children often have the disease 3—4 weeks after or before.

Treatment: 1. Apply Calamine Lotion to rash.
2. Advise plenty of fluids.
3. Aspirin for fever as for Measles.

8.3.9.4. Mumps.

Symptoms: 1. Fever and loss of appetite.
2. Swelling on one or two sides of the face.
3. Skin over the swelling may be red, hot and tender.
4. Pain on opening the mouth or eating.

Treatment: 1. Fluid diet.
2. Rinse mouth with salt water.
3. Aspirin for pain and fever as for Measles.
4. If in adult male, recommend bed rest and refer to doctor.

8.3.9.5. Whooping cough.

Symptoms: 1. Acute cold followed by spasmodic cough.
2. Attack rises to climax with face red or bluish.
3. Followed by whoop, long indrawing of breath.
4. Vomiting may follow the coughing spasm.

Treatment: 1. Cough Mixture, see Cough 8.3.7.4.
2. Give food in frequent small amounts. May be given after coughing.
3. Inform doctor if patient less than two years old.

8.3.9.6. Diphtheria.

Symptoms: 1. Fever, sore throat, swollen glands of neck.
2. May be difficulty in breathing.
3. Rapid pulse, shock.

Check: 1. Examine throat with spoon and torch looking for whitish-grey coating at back of throat.

Treatment: Send to hospital immediately.

8.3.10

8.3.10.1

8.3.10.2

8.3.10. Pregnancy: First Three months.

8.3.10.1. Early symptoms.

- Symptoms:**
1. No menses.
 2. Breast enlargement.
 3. Enlargement of abdomen.
 4. Nausea and vomiting may be present.
- Check:**
1. Bleeding.
 2. Severe vomiting.
 3. Swelling of hands, feet and face.
 4. Headaches and blurred vision.
 5. History of repeated abortions or dead babies.
 6. History of twins, large babies, Caesarean Section.
- Treatment:** See 8.3.11.

8.3.10.2. Bleeding.

- Symptoms:** Bleeding in pregnant woman.
- Check:**
1. Passing of tissue or heavy bleeding (save all loss).
 2. Fever.
- Treatment:**
1. Bed rest.
 2. If heavy bleeding send to hospital immediately.
 3. If fever for more than twenty-four hours refer to PHC or hospital. If shocked send to PHC or hospital.
 4. Refer all cases to doctor at next clinic at PHC.

Abortion (complete).

- Symptoms:**
1. History of being pregnant and passing tissue.
 2. Almost no bleeding.
 3. Dark brown discharge.
- Check:**
1. Cause of abortion.
 2. Fever, vomiting, abdominal pain.
- Treatment:**
1. Iron and Folic Acid 1 tab three times daily for one month. Otherwise: Iron 1 tab three times daily, Folic Acid 1 tab daily.
 2. If known interference by dai or other person, refer to hospital at once.
 3. Refer all cases to doctor at next clinic.
 4. If fever, vomiting, abdominal pain or heavy bleeding, refer to hospital immediately.

Emergency measure: If doctor not available and patient deteriorating and cannot get to hospital give Methergin 0.4mg IM and Pethidine 50mgIM. Only when relatives consent, and when desperate measures needed, carry out manual removal of remaining contents of uterus. A very difficult procedure, and only to be attempted by midwife if entirely cut off from medical assistance. Prepare for further bleeding. Treat for shock. Raise patient's legs and feet. Give fluid per rectum.

8.3.11. Ante-Natal Care.

1. Try to make contact with women before the 8th week of their pregnancy.
2. See them at the subcentre or in their own homes.
3. Discuss medical termination of pregnancy and refer to medical officer at his next visit or to the PHC.
4. If the pregnancy continues give general advice, see check list for 20–22 week visit, and arrange proper ante-natal care (3.4.3).
5. If the woman does not come to the subcentre see her at home 20–22 weeks.
6. Woman seen at clinic or home.
 - a. 20–22 weeks.

Check: Mouth, tongue and teeth; eyes and nails for anaemia; breasts for deformities or depressed nipples; ankles for oedema; BP and Hb (Talquist); test urine for albumin (heat and acetic acid); Tetanus Toxoid, first dose about 16 weeks; abdominal palpation.

Treatment: Repeat advice given earlier, viz:

 1. Give Iron and Folic Acid; if Hb less than 8g refer PHC.
 2. Explain adequate diet including green vegetables.
 3. Personal hygiene, exercise and rest.
 4. Explain danger signs, bleeding, blurring vision, headache, oedema of feet and hands.
 - b. 28–32 weeks.

Do the same as indicated in (a.) above. Check foetal heart sound; measure Hb (Talquist); use this visit as an entry point for family planning; look for signs and symptoms of toxæmia, viz. oedema, giddiness, headache; repeat warning about danger signs of pregnancy; give second dose of Tetanus Toxoid if you are sure that she will **not** come to the clinic; enquire about place of delivery. If uncomplicated and at home, contact dai and arrange preparation of essential items for home delivery.
 - c. 38 weeks — term.

Do as indicated in (a.) above. Check foetal heart sound; stress significance of engagement of head in primigravidae; check all arrangements for home delivery and contact dai; refer if you find any abnormality; insist on delivery in PHC/hospital if Post Partum sterilization is desired; if delivery at home, explain Post Partum sterilization cannot be performed until more than 12 weeks after confinement.

8.3.12
8.3.12.1
8.3.12.2

8.3.12 Attendance at Home Delivery
(for Equipment see 7.3.3 and Table 16)

8.3.12.1. Action on receipt of call to woman in labour.

1. Check mother's ante-natal record carefully.
2. Check midwifery kit.
3. Leave information at PHC or subcentre showing time of call and the mother's address.
4. Take records, notebook and referral forms.
5. On reaching the house obtain information on duration of labour and stage of labour. Make sure a male member of the household is available to help in an emergency.
6. Place midwifery kit and notebook on a newspaper on a raised surface.
7. Find out how far the family has prepared for the confinement (5.1.3–5.1.6). Get a reliable female relative to help. Requirements: big vessel with boiling water, earthen-ware vessel, jug of water, clean old cloth, oil for baby's skin, wrap for baby. Put out your hand-towel, soap and nailbrush. Put on apron or gown. Wash your hands.

8.3.12.2. Conduct of labour.

1. Examine mother to ascertain the state of labour and note foetal heart rate and quality. Mother must not be left if Os is larger than two fingers. Boil bowls and instruments required for use in large bowl, cover with lid or another bowl.
2. If mother is in first stage, check on bowel clearance (rectal examination if necessary) and obtain and test specimen of urine.
3. If mother is in first stage of labour prepare to give an enema and clean the woman thereafter. Take enema can, tubing, glass connection and rectal tube, soap and mackintosh (razor blade if necessary?), rags and towels for cleaning thereafter. Shave if necessary, wash from waist to knees, after placing mackintosh under buttocks. Mother may get out of bed to empty bowel or use bedpan. Clean mother afterwards with soap and water.
4. If mother is in second stage and head on perineum: articles required for use will be flamed (methyated spirit) because of urgency.
5. Otherwise, watch progress of labour and give hot drinks to the mother.
6. When mother is nearing the second stage of labour cover a box, table or charpoy with clean paper, wash hands and set out in the order needed, the equipment required for the delivery. Place conveniently near the patient, sterile packets containing sheet, pads, wool swabs, cord dressings, cord ties, enamel bowls (2); kidney dish; covered pint measure 500 or 750ml; two pairs artery forceps; dissecting forceps; scissors; syringe with needles; teaspoon; mucus catheter; catheter; eyedropper; cooled boiled water; thermometer; Dettol; drugs as used etc.
7. Prepare 1 pint (500ml) of 2 per cent Dettol (2 teaspoonsful to 500ml), put half into a bowl and into this put swabs and dissecting forceps. Use remainder of the solution for rinsing the hands after the second stage.

8. Place patient in dorsal position lying on the sheet and mackintosh.
9. Watch character of pains, listen to foetal heart and see to the condition of the bladder.
10. Scrub hands for three minutes, rub on Dettol cream.
11. Swab mother with Dettol solution, dry with sterile swabs, place sterile sheet under buttocks.
12. With sterile pad held over the anus control the advancing head. The head should not deliver during a strong pain because of the risk of a perineal tear.
13. As soon as baby is delivered clean the mouth, nose and eyes with saline or cool boiled water. Clear any mucus with a rubber catheter (6.2.7.1).
14. Wait until cord pulsation stops, then tie and cut. If family refuse to have the cord cut before separation of the placenta, keep the baby warmly wrapped until the placenta is expelled. Make sure the placenta is intact.
15. After completion of third stage examine labia and perineum carefully for lacerations. If perineal tear is present send a member of the family with a message to the doctor; otherwise swab clean but do not introduce fluid into the vagina. Take and record fundal height, temperature of mother and make her comfortable. Wash your hands carefully. Abdominal binder if mother wishes it.
16. Assemble all your equipment, wash well and if possible boil — otherwise wrap and carry outside the maternity bag — boil immediately on returning to centre or subcentre. Wrap soiled clothes for the sweeper or dhobi, burn soiled dressings, arrange for disposal of placenta. Tidy the room.
17. Explain to family (1) Report to centre or subcentre if mother has any bleeding or discomfort; (2) Feeding of baby and beginning of lactation. Tell mother about use of vulval pads, washing hands and adequate rest.

8.3.12.3. Post Partum Visits.

1. Visit, at least, on second, sixth and fourteenth days and at six weeks; more often as necessary.
2. Greet the people in the house and whilst doing so observe condition of mother and child.
3. Place your treatment bag on paper on a stool or some raised object in the room. Hang personal belongings, coats, cardigans, handbag, etc., in a convenient place.
4. Put on apron or other form of covering. Take soap and towel from bag and wash hands under poured or running water — then dry.
5. Open bag **methodically** and set out on clean paper or other covering the equipment for your treatment of the perineum, sponging mother and bathing baby.
6. Put cotton wool swabs in bowl with a teaspoon and pair of dissecting forceps; cover with clean water and another bowl and put on fire to boil; allow to **boil for five minutes**.
7. Complete preparation of equipment so that everything is to hand.
8. Get water for baby's bath, wash your hands.

9. Take baby, sit on a low stool, arrange towel on your lap. Undress the baby, remove binder, weigh, and then envelop him in the towel with his head protruding. Place boiled clothes in container.
10. Wash the baby's eyes with a soft cloth kept for that purpose only; wash each eye separately, no soap on face.
11. Soap head and rub; rinse off and dry carefully. Soap hands and run quickly over baby's limbs and body. Then supporting him with a hand behind his head and neck and the other holding his limbs lower him into his bath; rinse away all the soap, then lift him out and dry carefully giving special attention to skin folds. These should be powdered or oiled.
12. Partly clothe baby before dressing the cord (especially important in the cold season). Dress cord. Put on binder and make sure it is secure without being tight. Then wrap him up and put him safely in his cot until you have attended to mother.
13. Wash your hands again. Take and record mother's temperature, pulse and notice her respirations. Collect the bowl with the dissecting forceps. Prepare Dettol solution (or other antiseptic, 15ml to 1000ml water).
14. Place waterproof under mother, give her bedpan, 'thalla' or 'tasla'. Note height of fundus and condition of lochia. Ask mother about her bladder and bowels — report any abnormalities as soon as possible.
15. When mother has passed urine remove soiled receptacle and place her ready for perineal dressing. Wash hands again and carry out dressing technique. Area then dried and clean pad applied (as below 8.3.12.4).
16. Remove dirty waterproof and put in container, before leaving the home wash with warm soap and water and hang to dry. Burn soiled dressings, wash instruments and bowl and reboil — wash hands.
17. Bath baby daily and note condition of cord.
18. Before leaving the home give the people looking after the mother and baby instructions for the care of both mother and child. Tell them of danger signs. This is a good opportunity for educational care in family procedures and in personal and environmental hygiene.

8.3.12.4. Care of the perineum (aseptic management, changing and panning).

You have three objectives in the 'aseptic' management of the puerperium.

1. To prevent the entrance of pathogenic bacteria into the vagina.
2. To keep the vulva and perineum as dry as possible.
3. To allow drainage from the uterus and the vagina.

Prevent the entrance of bacteria into the genital tract, do not introduce anything into the vagina, do not douche or examine the vagina when cleaning the vulva. Maintain the vulva and perineum as clean as possible, use an efficient aseptic technique.

The vulva and perineum are kept dry, first by using dry sterile dressing, secondly by removing as often as possible all dressings which have been made wet by lochial discharge, and thirdly by preventing faecal contamination of the skin of the vulva.

Promote drainage of the uterus and vagina by allowing the patient to sit up and move about freely in bed as soon after labour as her condition permits. This is normally possible the day after delivery unless the perineum has been torn.

Let her sit on a chamber when passing urine or having her bowels moved. Allow her up on second or third day.

The patient should use a chamber throughout the puerperium either in sitting or kneeling position. This allows lochia to drain from the uterus into the vagina and escape into the chamber. If she does not sit up or turn over at regular intervals the discharge never drains completely away and tends to become infected. Thus **sitting up** is one of the most important points in the prevention of infection during the puerperium.

Attention to the foregoing is the basis of the aseptic technique for care of the mothers during the puerperium.

Changing and Panning.

Boil the bowls, swabs and forceps for five minutes. Put on your mask. Place the utensils on a piece of clean newspaper. Into one bowl put the sterile dry pad and swabs and into the other half a pint (300ml) of Dettol solution (15ml Dettol in 1,000 ml water). If the patient has a perineal tear or requires a sterile dressing an extra bowl is needed. Put lotion in this also.

Prepare the patient as follows:

Remove the binder — if not soiled, roll and place it at the side of the bed. Remove the soiled vulval pad and napkin, wrap in paper and, if possible, burn. The patient sits on a chamber, empties the bladder and bowels if necessary.

The patient is then placed on a bedpan while you empty, rinse and, if possible boil the chamber. Otherwise wash it with soap and water and scald with boiling water.

The patient is now lying on the bedpan, remove her pillow, fold the bedclothes down and place a folded sheet over her chest and abdomen.

Wash your hands under running or poured water and then push the folded bedclothes down with your elbow. Using forceps swab the vulva from before backwards using three swabs in succession, each of which are wrung out of the Dettol solution with two pairs of forceps. Separate the labia with the thumb and the forefinger of the left hand and swab, using each swab once only.

Hold a swab over the vaginal orifice and pour the Dettol over the vulval area. Then dry area with dry sterile swabs, remove the bedpan with the left hand and place it on a stool.

Turn the patient to the left lateral position and wash the anal area. Dry with swabs. The sterile vulval swab is placed in position and over it a napkin. Then pin the napkin to the binder.

Turn the patient on her back, bring the binder forwards over the pubis and pin to binder in front. The binder must reach at least 15cm (6") below the great trochanter. Tidy the bed and leave the patient comfortable but lying on her abdomen for twenty minutes whilst you remove and rinse soiled utensils and boil them for three minutes. At the end of this time wash your hands. As you leave the house, repeat your instructions about the need to call for assistance if there is bleeding or pain.

8.3.13. Complications during delivery at home.

8.3.13.1. Cord presentation.

Membranes intact.

Prepare for transfer to PHC or hospital. Listen carefully for foetal heart and record rate and time. Mother lying flat on bed with shoulders lower than pelvis.

Be careful **not** to puncture membranes when feeling for pulsation of cord.

If foetal heart not heard still get medical aid because malpresentation may be present.

8.3.13.2. Post Partum haemorrhage.

PPH is diminished in women in good health — improve general condition in ante-natal period.

Advise PHC or hospital confinement in women 'at risk', in multiple pregnancy, anaemia, APH, fifth pregnancy or more.

a. If bleeding occurs after delivery of placenta

- (1) Give Methergin 0.2mg IM.
- (2) Send a message to call physician if near enough.
- (3) Feel for fundus of uterus, massage to stimulate contraction.
- (4) Stop massage as soon as contraction occurs; wait with hand on fundus and repeat massage if softening recurs.
- (5) Raise foot of bed when bleeding is controlled.
- (6) Give fluid by mouth or rectum.
- (7) May be necessary to encourage patient to visit hospital later.
- (8) Confirm that the bladder is empty.

b. If placenta is partly separated

- (1) Give Methergin 0.2mg IM.
- (2) Send messenger for doctor.
- (3) If no doctor and bleeding is so severe that patient's life is in danger, obtain consent of relatives to do manual removal of placenta.
- (4) If bleeding does not decrease after delivery of placenta — then bimanual compression.

Note: If placenta is retained but there is **no** bleeding do not interfere — get medical aid.

c. Haemorrhage due to lacerations

- (1) Lacerations must be sutured by a doctor.
- (2) If bleeding site is visible, pressure may control bleeding.
- (3) If bleeding is dangerous and no medical aid can become available in time — midwife can pack the vagina. This procedure must only be undertaken when uterus is well contracted and bladder empty. (A clean cotton sari may be used for packing if other suitable material is not available).

8.3.14. Action on Finding an Abnormal Lie or Presentation
(FHW or Dai)

8.3.14.1. Transverse lie.

This condition is dangerous. If found by dai in pregnancy she must refer patients to FHW (ANM) or PHC. If in labour take patient to PHC or hospital.

Treatment by FHW (ANM).

In Pregnancy:

After thirty-two weeks take patient to doctor or hospital for examination and possible version. Visit again and if abnormal lie persists, persuade mother to go to hospital or PHC.

In early labour:

Get patient into hospital. Beware of prolapsed cord in transit. Check foetal heart on way.

In strong labour:

Get patient into hospital if possible. If not, may be able to convert to longitudinal lie between contractions. Explain danger to relatives.

8.3.14.2. Face and Brow.

Get patient into PHC or hospital, if in early labour.

Recognition — non-engagement of part, head feels big (may resemble hydrocephalus).

In strong labour i.e. in obstructed labour:

Explain danger to mother and baby. Remove patient to hospital if possible. If not possible obtain permission of relatives before undertaking the following actions:

Make careful vaginal examination to recognise:

1. Dilation of cervix (careful of baby's eyes).
2. Incomplete extension of anterior chin.
3. Posterior chin.
4. If cord prolapsed.

If chin is anterior (limbs in front, back posterior) try to increase extension and make brow into face.

If chin is posterior (back anterior) try to increase flexion and convert brow to vertex.

Both these procedures are very difficult and only justified if you are entirely cut off from medical help.

8.3.14.3. Emergencies with breech deliveries.

Breech must not be kept for delivery at home. Dais must be taught to recognise breech in ante-natal period and refer to FHW (ANM), and in labour send to PHC or hospital.

Dais must also be taught that the patient must never push before the cervix is fully dilated.

8.3.14.3

8.3.15

8.3.15.1

8.3.15.2

Emergencies.

1. Breech protruding through undilated cervix.

Treatment: Stop patient from pushing during pains.

Have peace and quiet in the room.

Help mother to relax with deep breathing.

Make vaginal examination to check dilation.

Wait until cervix is fully dilated.

2. Delay due to extended legs (cervix fully dilated).

Treatment: Prepare your hands.

Feel for anterior knee.

Flex anterior leg by pressing behind knee, bring down leg.

Do not pull.

Wait for next contraction to complete expulsion of breech.

3. Delay due to extended arms (baby born as far as umbilicus).

Treatment: Prepare your hands.

Bring down posterior arm with your corresponding hand.

(1) Feel for elbow.

(2) Flex baby's arm.

(3) Make sweep over baby's face.

(4) Bring down and out.

Allow shoulders to be born without traction, but if still delay bring down other arm. Turn baby gently round pelvis so that anterior arm becomes posterior, making baby's body turn in the direction his first hand is pointing. Then repeat action above to bring down posterior (second) arm.

4. Delay due to after-coming head — extension.

Treatment: Be sure bladder is empty.

Follow curve of birth canal as you extract head slowly.

Give special care to baby — danger of cerebral injury.

8.3.15. Complications in Puerperium.

8.3.15.1. Cracked nipples.

Symptoms: 1. Visible cracks in nipple.

2. Pain when nursing.

Check: Fever (if present, treat as abscess).

Treatment: 1. Feed child from other breast.

2. Express milk four hourly from affected breast for twenty-four hours; if not improving, for further twenty-four hours.

3. Wash with soap and water and apply soothing oil or ointment four hourly after expressing.

8.3.15.2. Breast abscess.

Symptoms: 1. One breast engorged, painful and warm.

2. Fever.

3. May be red area or hard segment.

Treatment: Refer to hospital immediately.

8.3.16
8.3.16.1
8.3.16.2
8.3.16.3
8.3.16.4

8.3.16. Care of the Newborn

8.3.16.1. At birth.

1. After tying and cutting cord, wrap baby in warm cloth and lay on side.
2. Watch colour and respirations.
3. After attending to mother, bath the baby.
4. Check for any obvious abnormalities — refer to PHC.
5. Apply Acriflavine with spirit to cord and cover with clean dressing.
6. Weigh baby and record weight.

8.3.16.2. In Puerperium.

1. At visits note activity, colour, suckling.
2. Renew cord dressing with Acriflavine; keep covered until cord is off.
3. Inspect skin for sores and spots.
4. In hot weather advise extra boiled water.

- Check:
1. Sticky eyes: eyelids stuck together, with or without pus.
 - a. Clean with boiled swabs and plenty of cooled boiled water four hourly or more frequently.
 - b. If no improvement after forty-eight hours refer PHC.
 2. Septic Spots — in skin folds particularly.
 - a. Break spots and remove pus.
 - b. Teach mother to apply Acriflavine with spirit two hourly.
 3. Sore buttocks — usually with loose stools.
 - a. Wash with soap and water, apply Vaseline.
 - b. Teach cleanliness and correct feeding.

8.3.16.3. Small Baby

- Symptoms:
1. Small baby with red wrinkled skin.
 2. Irregular breathing.
 3. Not suckling well.

- Treatment:
1. Keep warm and wrapped in cloth.
 2. Do not bath.
 3. Do not handle except to feed.
 4. Small frequent breast milk feeds.
 5. Refer to PHC if:
 - a. unable to suck; b. inactive;
 - c. marked sucking-in of ribs.

8.3.16.4. Cephalhaematoma.

- Symptoms:
1. Soft swelling on head after long labour.
 2. Limited by sutures.
 3. Painless.

8.3.16.4

8.3.16.5

8.3.16.6

8.3.16.7

8.3.16.8

Treatment: 1. No treatment is necessary.
2. Reassure the family.
3. If the child becomes inactive refer to PHC.

8.3.16.5. Cyanosis (blue asphyxia).

Symptoms: 1. Skin blue all over or only arms and legs.
2. Breathing may be rapid, gasping or normal.
3. Sucking-in of spaces between ribs.

Check: 1. Changes in breathing movements.
2. Ask about duration of labour or drugs taken during labour.

Treatment: 1. Clean mouth and nostrils of any blood etc.
2. If mucus in mouth, remove with a soft clean cloth or catheter.
Once mouth and airway are free —
3. Do not disturb the baby.
4. Keep warm.
5. Do not feed baby.
6. Refer to PHC or call physician.

8.3.16.6. Birth deformity.

Symptoms: Hare lip, cleft palate, swelling along spinal column, or bone deformity — other deformities.

Treatment: Refer to PHC.

8.3.16.7. Pallor.

Symptoms: 1. Very pale colour — including lips and tongue.
2. Inactive with limp arms and legs.
3. Cold skin, possibly wrinkled.

Check: 1. Breathing rate and heart rate.
2. Ask about bleeding before or during delivery, long labour, and drugs given during labour.
3. Bleeding from cord, inspect the ligature.
4. Colour of stools — red or black.

Treatment: 1. If bleeding from the cord, re-tie.
2. If child is not breathing, give mouth to mouth respiration in small puffs.
3. Wrap child in warm cloth and keep warm.
4. Refer to PHC immediately or send for physician.

8.3.16.8. Fits.

Symptoms: 1. Jerking of arms and legs or twitching of muscles.
2. Arms and legs may be drawn close to body with irregular trembling.
3. Fits may be on one side only or both sides.

8.3.16.8
8.3.16.9
8.3.16.10
8.3.16.11
8.3.16.12

Check: 1. Mucus, blood or vomitus in mouth.
2. Find out duration.
3. Take temperature.

Treatment: 1. Clean mouth and nose.
2. Lay on one side with head lower than body.
3. Do not restrict movements.
4. Keep warm.
5. Refer to PHC or send for physician.

8.3.16.9. Vomiting.

Symptoms: 1. One or more vomit.

Check: 1. Colour of vomit or frothing.
2. Distension of stomach.
3. Measure for change in girth.

Treatment: 1. Do not give anything by mouth.
2. Keep nose and mouth clean.
3. Lay on side with head lower than body.
4. Send to PHC or for physician if:
a. more than one vomit.
b. abdomen increases in size.
c. vomit is bile stained, green or red.

8.3.16.10. Red or Infected umbilicus.

Symptoms: Area around umbilicus is red and may be oozing water, pus or blood.

Check: 1. Fever.
2. Mother: check for Tetanus Toxoid.

Treatment: 1. Clean with Acriflavine with spirit twice daily and cover with gauze dressing. Apply 2 per cent Gentian Violet.
2. If any fever or vomiting, refer immediately.

8.3.16.11. Pemphigus.

Symptoms: Blisters on skin, clear or blood-stained, later burst or pus filled.

Check: 1. Umbilicus.
2. Take temperature.

Treatment: 1. Separate baby from siblings.
2. Apply Gentian Violet 2 per cent locally.
3. Leave any unruptured blisters.
4. Tell mother not to mix babies clothes etc. with those of other people.
5. Wash hands before and after touching baby.

8.3.16.12. Jaundice.

Symptoms: 1. Yellow skin and eyes.
2. May be inactive.

8.3.16.12

8.3.16.13

8.3.16.14

8.3.16.15

- Check: 1. Deepening of yellow colour.
2. History of other children with jaundice.

- Treatment: 1. Breast feed baby as usual.
2. Give extra boiled water between feeds.
3. Refer to PHC immediately if:
a. Infant is yellow on the first day of life.
b. Increasingly yellow colour with inactivity.

8.3.16.13. Constipation.

Symptoms: No stools in the first forty-eight hours after birth.

- Check: 1. With rectal thermometer in anal opening, if it gets dirty — rectum is open; infant may pass plug of mucus.
2. Vomiting.
3. Increase in abdominal size. Intestinal obstruction.
(measure).

- Treatment: 1. Refer immediately if:
a. Rectum is not open, do not feed.
b. Vomiting or increase in abdominal size.
2. If no vomiting, no increase in abdominal size and rectum is open, observe for two days; if no stool after forty-eight hours, refer to PHC or call physician.

8.3.16.14. Tetanus Neonatorum.

- Symptoms: 1. Locked jaw.
2. Stiff drawn up limbs.
3. Difficulty in breathing.
4. Baby in pain.

- Check: 1. Administration of Tetanus Toxoid to mother before delivery.
2. Umbilicus.

Treatment: Send baby to PHC.

8.3.16.15. Thrush.

- Symptoms: 1. Presence on the buccal mucosa and tongue of white specks of fungus. These may join together to form larger areas.
2. Unless the fungus has been removed by rubbing, the mouth is not painful.

- Check: 1. How infant is feeding.
2. If there is any rash on buttocks.
3. Infant's weight.

- Treatment: 1. Cleanliness of mother's hands and breasts.
2. Drop 2 per cent aqueous Gentian Violet into mouth.
3. Do not rub the thrush away.
4. Refer to physician if improvement not rapid.

CHAPTER 9

Teaching Activities in the Community Block

Your place in them

Section 9.1. INTRODUCTION.

Teaching continuing quietly but steadily over months and years is the most important health activity in the Community Development Block. Only continued education will raise the general level of health and give individuals the opportunity to improve their own health.

This section indicates the health educational activities of the health team and gives examples of topics. The range is almost inexhaustable and once the habit of teaching is established there is no difficulty in finding subjects.

Methods of teaching have been presented in Section 6.3. The need for teaching and opportunities for it are stressed throughout the handbook.

Teaching and learning go together; the good teacher always learns while teaching. *Everyone* in the health team must be involved in learning just as in teaching; both are attitudes of mind related to interest, motivation and involvement.

For the purposes of description and organisation the teaching activities within the Block can be divided into two types, of equal importance and related to each other. First, activities within the health team designed to improve efficiency and to increase personal job satisfaction in the delivery of care to mothers and children. Second, educational activities which the health team shares with others, the mothers and children; those in positions of authority in the management of the Block; teachers responsible for the education of children; with all other types of community workers; with village leaders and with village workers.

Thus this chapter links with every other in the book.

Section 9.2. EDUCATIONAL ACTIVITIES WITHIN THE HEALTH TEAM.

All categories of health workers must be involved. The objectives are to improve efficiency of work and to increase personal satisfaction in work by discussion; the clarification and solution of problems; the dissemination of information; by stimulation of interest and motivation and improved personal relationships within the team.

Two types of continuing education can be identified and consciously pursued.

1. On-the-job training.
2. Organised regular sessions of continuing education to help all health workers to reinforce their knowledge; to learn new trends in organisation of services, to be informed of changes in policy or treatments in all matters concerning MCH care.

On-the-job Training.

This must be an activity undertaken by all as opportunity arises during the daily round of work; it is partly unconscious by the example of personal work and conduct, and partly by conscious relevant teaching and demonstration as opportunity or time and service allow. This type of teaching and learning is not planned and systematic but is episodic and cumulative as members of the team work together.

It occurs in clinical situations during the diagnosis, treatment and communication of advice to those seeking help for themselves or their children; in discussion of delegated duties and responsibilities; during supervision and monitoring of registers, reports, work schedules and indeed in every aspect of the work relationship. Good personal relationships are the secret of success.

Everyone in the health team must take part; physicians can inform and guide all other workers; both male and female health assistants help the health workers, and health workers the village dais and village workers. In return the physicians learn about the attitudes of the workers, the problems which confront them and this constitutes an important source of 'feedback' which can be used to improve the quality of work.

Regular sessions of 'in-service' training must be held each month, usually at the PHC but also in subcentres. The method of organising this session is described in 6.3.6. A programme of topics should be arranged to cover major aspects of MCH/FP care (9.3). The results are evaluated by female and male health assistants during their visits to subcentres and in their work, when they can assess changes in attitudes and in work behaviour.

Section 9.3. IN-SERVICE TRAINING OF CATEGORIES OF HEALTH WORKERS

All members of the health team should be involved but each category, including physicians, needs to have refresher training related to their own roles.

9.3.1. Physicians.

You, as physician, will always be learning as well as teaching; you learn by the lessons of experience, by discussion and by quiet reflection and you teach by example, by professional association in the work of your health team throughout its cycle, by involving other workers in the regular required review and discussion sessions so that the whole health work of the Block is under continuous scrutiny. You must also be concerned with the choice of subjects and the arrangements for the educational session given to mothers by the female health workers and health assistants.

You learn as you become skilled in your regular weekly routine of work and as you yourself teach. You need nevertheless opportunities to meet physicians from other Community Blocks and the medical staff of district hospitals or headquarters at intermittent but regular occasions. Periodic practical in-service 'refresher' training is necessary particularly for physicians who have been in post for two or more years.

9.3.2. Health Assistants.

Supervision is essential but it is also a delicate role which if not understood and turned into a constructive educational activity can become oppressive and resented. This area of work together with monitoring and delegation requires careful study by all whose role includes supervision. Indeed all members of the health team both supervise and are supervised (6.4.3). Discussions should include the meaning of supervision, its nature and purpose, who supervises, when it is done and the importance of general understanding of the content of supervision, both regular planned schedules and surprise checks.

9.3.3. Female Health Workers.

The female health workers are most in contact with mothers and children and need educative and training support from the physicians and health assistants. Their in-service training should be designed to cover all aspects of the clinical and managerial roles. The following indicates the areas to be covered in the monthly meetings at the PHC over a period of about two years.

General, for all patients:

1. Taking of histories, examination and observation of signs and symptoms for detection of deviations from normal —
 - a. for first line treatment as in the Block Standing Orders.
 - b. for referrals — immediate and within 24–48 hours — at the time of the physician's visits to subcentres; to PHC.
2. Description of signs and symptoms or conditions requiring—
 - a. referrals
 - b. first line treatment.
3. Methods of referral.
4. Details of first line treatment — for inclusion in Standing Orders.
5. Danger signals respecting conditions for which first line treatment is delegated to the FHW.
6. Effects of the drugs the FHW is allowed to administer.
7. Contra-indications regarding drugs she is allowed to administer.
8. Schedule for home and clinic visits.
9. Preventive and promotive health measures to be undertaken including health and nutrition education.
10. Follow-up mechanisms.

For Women and Children.

Training should include:

1. Steps for detection of the mother's felt needs concerning her children and herself.
2. Means of defining mother's attitude and expectations regarding her children's health.
3. Assessment of nutrition of mother and children. Preparation of foods.
4. Care of pregnant women.
List of conditions categorised as "high risk" for pregnant women for immediate referrals.

5. Ante-natal care schedule.
6. Administration of Tetanus Toxoid to pregnant women.
7. Instruction on intra-natal care and referrals.
8. Post-natal care.
9. Instructions regarding care during lactation.
10. Instructions for care of neonates, infants and pre-school children including 'milestones'; use of 'under fives' chart.
11. Immunization schedules — for neonates — for infants — for children under five. Techniques of immunization.
12. Conduct of 'under fives' clinics. Feeding of children.
13. Instructions regarding communicable diseases.
14. Instructions for well women survey.
15. Family Planning services, points of contact, 'entry' points
16. Screening for permanent sterilisation.
17. Follow-up mechanisms for active users of family planning and distribution of contraceptives.
18. Distribution of drugs and diet supplements for mothers and children. Information regarding Balwadis.
19. Screening of children and mothers for distribution of milk and other nutritional supplements.

9.3.4. Community Health Workers.

As community health workers are trained and become members of the primary care team they will settle into village work. Integration with the team should be an active process so that each community health worker knows his or her relationships with other members and understands their relative roles in the operation of the team as a whole. These workers like others need to be included in refresher courses when the subject is appropriate. They must be seen each time the village is visited and need careful encouragement and supervision.

Section 9.4. HEALTH EDUCATION OF MOTHERS AND CHILDREN

Health workers are trained to help and teach others. This truth is emphasised throughout the handbook; and by the nature of her work and her situation in the subcentre and PHC the FHW has the best chance to know the mothers and children as individuals and to influence them by teaching.

1. FHW (ANM) are in constant contact with mothers during their childbearing years.
2. During home visiting (6.4.8) teaching can extend to the whole family, e.g. teaching on 'insect and fly' control.
3. During home visits the FHW can teach by example and demonstration.
4. FHW can give individual teaching in the home, and adjust the topic to the opportunities of the moment, e.g. better ways of cooking to preserve the nutritive value of foods.
5. FHW can give group talks in the ante-natal clinics.

FHW must remember that in health teaching

1. Talks must be in simple language, so that every mother can understand.
2. Talks must be suitable for the type of listener.
3. Each group talk should be prepared and illustrated by pictures, flannelgraphs or in demonstrations (6.3).
4. Have the mothers sitting comfortably so that everyone can see and hear well.
5. At the end of a talk, go over the main points you wish to communicate, encourage discussion and ask questions.

Groups of talks can be prepared for every aspect of the FHW's work with both mothers and children. The following, relating to ante-natal care and preparation for home confinement, are given simply as an example of a single area of concern.

Suggested Educational Subjects for Ante-natal Clinics.

1. Keeping well in pregnancy. Points to teach.
 Importance of regular visits to Ante-natal Clinics.
 Need for rest and sleep.
 Importance of personal cleanliness.
 Importance of eating the correct amounts and types of food.
 Dangers of using castor oil.
 Morning sickness and indigestion can be treated if the mothers will tell the midwife.
 Slight increase in vaginal discharge may be present.
 Fresh air important.
 Mouth and teeth should be kept healthy.
2. Preparation for breast feeding.
 Breast feeding is natural.
 Simple preparation is important, i.e. cleanliness and massage with soapy hand.
 Baby must be helped to suckle correctly.
 Breasts emptied at each feed.
 Hand expression if necessary.
 Breasts must be cleaned and dried before and after feeds.
 Need to drink plenty and to eat proper foods.
 What to wear for comfort and health.
3. Importance of calling the Trained Midwife.
 She will visit the home and see the mother at the Ante-natal Clinic.
 She understands mother's health needs.
 She is able to refer when necessary.
 She helps mothers to have a normal delivery and healthy baby.
 She does not allow infection to occur.
 She can give help and advice about the baby.
4. What to prepare for Home Confinement.
 Encourage the mothers to get plenty of clean old cotton pieces ready by the beginning of the ninth month.
 The room and bed should be chosen and cleaned.
 All unnecessary things removed.
 Let sunshine into room if possible.
 Show the mothers what you want them to have ready for you.

The following list may be used:

- (1) Plenty of clean old clothes, boiled, dried in the sun and packed away in a tin box.
- (2) Vessels for boiling water, and cold boiled water, one large enough with cover to hold equipment for boiling.
- (3) Three old vessels for after-birth, soiled dressings and bedpan — these will be destroyed.
- (4) Two small metal bowls.
- (5) Soap for mother and baby.
- (6) A stool or table on which to set the equipment, or a clean palm mat if nothing else available.
- (7) If possible some clean old newspapers.

Tell mothers

Be sure you have a clean cot for your baby. Show the setting of your midwifery equipment from the kit. Mothers may be frightened if they do not see this until they are in labour.

What to expect in labour — Be ready from the beginning of the ninth month, baby may come sooner than you expect.

Signs and symptoms of labour — 'Slow', painful contractions, possibility of membranes rupturing. Do not worry if the baby does not come on the expected date but continue to attend the Clinic.

Description of the first stage — Regular, painful contractions beginning in back passing to the front and becoming more frequent. Importance of calling the midwife in good time.

Description of second stage — How the mother can help herself by deep breathing or panting breaths as the midwife instructs her.

The delivery of the baby.

The afterbirth.

Separation of the baby — his first responses.

Talk best illustrated by slides from birth Atlas or a flannelgraph of the birth of a baby.

Section 9.5. THE TRAINING OF DAIS.

Dais attend most births in rural areas. The objective that the FHW should attend 50 per cent of deliveries in the intensive area will not be reached in many Blocks for some time to come. Only a small proportion of dais have received training in midwifery or in family planning and the Government has formulated a training scheme to operate in Community Development Blocks.

9.5.1. Details of the scheme (amounts payable may change).

1. Duration one month; selected candidates are required to attend the PHC or subcentre twice a week. During the other four days in the week she accompanies the FHW (ANM) preferably in her own area. At least two deliveries must be conducted by each dai under supervision of FHW and Female Health Assistant (ANM and LHV's) who will also give practical instruction.
2. A stipend of Rs 10/- a day is paid to each dai who attends the training class in the PHC or subcentre. After training a dai will be entitled to Rs 2/- for each delivery if the case is registered with the FHW (ANM) during the ante-natal period. If delivered but not registered only Rs 1/- will be payable. This payment is towards cost of cotton wool, soap, antiseptics, drugs, etc. Payment is made by the medical officer of the PHC through the supervising FHW (ANM).
3. A trained dai will be encouraged to act as a motivator for family planning and paid a motivation fee according to local rules. She might be considered for appointment as an Attendant (Voluntary Worker) at a rural Family Welfare Planning Centre and Subcentres.
4. A trained dai may be provided with a kit at a cost not more than Rs 50/- per kit. For contents (7.3.3.3).
5. Training equipment will be provided for each centre where training arrangements are made. The cost must not be more than Rs 500/- (7.3.3.4).

9.5.2. Objectives.

- General:**
- To improve midwifery services in rural areas and reduce maternal and infant deaths.
 - To involve the dais in family planning programme.
 - To introduce knowledge of cleanliness and asepsis into the work of the dais, to improve practice and reduce complications of labour.
 - To train dais to know when to seek assistance.
 - To help dais to act as a link between the Government services and the families she serves.
- Specific:**
- To identify dais working in rural areas.
 - To enrol them for training.
 - In training to teach: the prevention of infection, how to obtain help from FHW (ANM), recognition of their role in the community.

You must take a census of the dais practising within an area. Then make efforts to bring them under training; seek assistance of the Gram Panchayat, Mahila Mandals.

9.5.3

9.5.4

9.5.5

9.5.6

9.5.3. Content of training.

Anatomy of the female pelvis and reproductive organs.

Menstruation, fertilisation and growth of the foetus.

Human reproduction and contraception.

Definition of sepsis and asepsis.

Sterilisation techniques, scissors, cord ties, etc.

Preventable diseases and causes of death in mothers and newborn infants.

Care of mother during pregnancy, immunization against tetanus.

Complications of pregnancy.

Difficulties arising from ill-timed intervention.

Recognition of abnormal pregnancy, reference for aid or sending patient to hospital before labour begins.

Preparation of normal delivery, guidance in normal labour and its management.

Causes of post-partum haemorrhage, prevention and first aid.

Care of mother and baby after delivery.

Infant feeding, breast feeding, immunizations.

Contraceptive methods.

Role of dais in family planning and MCH programme.

9.5.4. Methodology.

Most dais are illiterate; methods of teaching to be used are observation, discussion, demonstration, practice under guidance, supervision of practice. The duration of the course has been described in 9.1.

9.5.5. Examination.

An oral test will be given after the completion of training. Each PHC would maintain a register of the dais trained and a similar register will be kept in the MCH section of the State Headquarters.

9.5.6. Continued guidance and supervision.

1. Continued supervision and support is required after the initial period of training. If this is not given the dai generally goes back to her previous practices.
2. To maintain interest in family planning the dai will be entitled to payment as motivator for every woman she brings forward for insertion of IUD or sterilisation. This means close work with the FHW (ANM); thus the dai will attend when the FHW (ANM) visits her villages and make home visits with her. During these visits the FHW (ANM) will inspect the dai maternity kit to see it is complete and clean. The dai must report all births and deaths to the FHW (ANM).
The dai will be entrusted with the distribution of conventional contraceptives in her village.

CHAPTER 10

Where you can get more information; Other books you can use.

Section 10.1. INTRODUCTION.

This handbook is a book of first and immediate reference designed to help you in your clinical work, in your teaching and in your capacity as manager and organiser. It will do that if you use it carefully. But it cannot contain all the information you will ever need and like every working doctor you will find it necessary to refer to other books and publications for clinical, educational or managerial information or to satisfy your own desire for information and knowledge.

Sources of information may be grouped under six heads:

1. Government and State directives reaching the PHC via the District Headquarters.
2. Government Publications.
3. Text Books.
4. Publications by United Nations Agencies particularly World Health Organisation and U.N.I.C.E.F.
5. The use of medical journals.
6. Institutions preparing audio-visual aids.

Section 10.2. GOVERNMENT AND STATE DIRECTIVES AND CIRCULARS.

As the administrative agent of the State Government you will receive both information and requests for returns of various types. These returns will usually be compiled from information obtained from the record system but sometimes might require special survey methods for collection.

Circulars issued by the Government must be carefully read and kept classified and protected so that they may be available for constant reference.

Section 10.3. GOVERNMENT PUBLICATIONS.

Government publications are issued on many subjects from Delhi. They are available from the following address. Current catalogues are also available on request from the same address.

List of handbooks.

Example: Manual on Immunization

Mass Mailing Unit,
Department of Family Planning,
Kotla Road,
New Delhi.

The Ministry of Health and Family Welfare, in association with the World Health Organisation, has prepared a series of manuals for use in primary health care.

1. Manual for Auxiliary Nurse Midwife (Female Health Worker), 2 vol. 1978.
2. Manual for Male Multipurpose Worker, 2 vol. 1978.

3. Manual for Community Health Volunteers, 2nd Edition, 1978.
4. Manual on Immunizations for Peripheral Health Workers.
5. Booklet on 'Cold Chain Equipment and Maintenance'.
6. National Formulary of India, Ministry of Health, 3rd Edition, 1979.

These are obtainable from:

Director General of Health Services,
Nirman Bhavan,
New Delhi 110011.

7. A Manual for the Primary Health Worker is at present being developed on 'Child Mental Health and Psychological Development' (SEA/MENT/65).

Copies are obtainable from:

The Regional Director,
South East Asia Regional Office,
WHO House,
Ring Road, New Delhi 110002.

Section 10.4. TEXT BOOKS & HANDBOOKS (other than Government publications).

You need to have available a recent edition of a text book in each of the subjects included in MCH. As far as possible you should buy paper-backed editions of books prepared from practical experience in this country.

The following volumes can be recommended:

Text book of Preventive and Social Medicine.
(A treatise on Community Health).

Park J.E. and Park. K. 5th Edition, 1976.

Banarsidas, Bhanot, Jabalpur.

Paediatrics in Developing Tropical Countries.

S.T. Acher.

Orient, Longman, Bombay.

Feeding and Care of Infants and Young Children.

Shanti Ghosh, UNICEF Publications.

UNICEF, SCAR, New Delhi, 1976.

Early Detection and Prevention of Protein Calorie Malnutrition.

P.M. Shah.

Popular Prakasham, Bombay, 1974.

Clinical Obstetrics.

Mudaliar A.L. and Menon K.M.

Oriental Longman, Madras, 1972.

Obstetrics.

C.S. Dawn.

Dawn Books, Calcutta. 1970.

Child Health Care in Rural Areas.

A Manual for Auxiliary Nurse Midwives.

Asia Publishing House.

Bombay, Calcutta, New Delhi, Madras, Lucknow, Bangalore.

A Textbook of Child Behaviour and Development.

B. Kuppuswamy.

Vikas Publishing House, Pvt. Ltd., Delhi. 1974.

Textbook of Gynaecology.

Masani K.M.

Popular Prakasham, Bombay. 1969.

Practical Mother and Child Care.

B.N.S. Walia, P.M. Shah and Kusum P. Shah.

Orient, Longman, Publishers, Bombay.

The National Neonatal Forum has published

Recommendations on Neonatal Care in India (September 1981).

Editors, Ishwar C. Verma, Onkar N. Bhakoo, Dipak K. Guha and

Santosh K. Bhargava. Published at Department of Paediatrics, All-India

Institute of Medical Sciences, New Delhi 110029, India.

These recommendations cover the care of the newly born infant in all situations including the home and the primary Health Centre.

Section 10.5. PUBLICATIONS BY UNITED NATIONS AGENCIES PARTICULARLY THE WORLD HEALTH ORGANISATION.

Many valuable medical publications are issued by the World Health Organisation. By special arrangement these are made available from the following address, at half the published price (cost payable in rupees). As with Government of India publications it is necessary to have a **catalogue of current volumes** and this also can be **obtained** on application from the **Regional Office, WHO**.

W.H.O. South East Asia Regional Office,
Indraprastha Estate,
Ring Road,
New Delhi. 110002,
India.

Examples of valuable short cheap publications are:

1. Treatment and Prevention of Dehydration in Diarrhoeal Diseases. A Guide for use at Primary Level.
W.H.O. Geneva. 1976. 31 pages.
2. Vitamin A Deficiency and Xerophthalmia.
Report of Joint WHO/USAID Meeting.
Technical Report Series 590.
W.H.O. Geneva, 1976. 88 pages.
3. Leprosy in Children.
F.M. Noussiton.
W.H.O. Geneva, 1976. 28 pages.

Section 10.6. THE USE OF MEDICAL JOURNALS.

Journals are most valuable for recent work and current topics and thought. But they are not always available and apart from personal circulation, can best be found in the libraries of Medical Colleges. Permission to use the library may be necessary but can usually be obtained from the Dean or Principal of the Medical College concerned.

Some libraries will furnish photostat copies of articles on payment of a small fee.

Section 10.7. INSTITUTIONS PREPARING AUDIO-VISUAL AIDS.

1. Director,
Central Health Education Bureau,
Kotla Road,
New Delhi.
2. Literacy House,
Lucknow. U.P.
3. Department of Teaching Aids,
Indraprastha Estate,
Ring Road,
New Delhi.
4. Christian Literature Society,
Nagpur.
5. Audio-Visual Centre,
Department of Preventive Social Medicine,
Christian Medical College,
Vellore.
6. National Audio-Visual Aids Corporation,
Chawri Bazar,
Delhi. 110006.
7. Voluntary Health Association of India.
C-14 Community Centre,
Safdarjung Development Area,
New Delhi, 110016.
(Publish catalogue and have mail order service.)
8. In addition to these, each of the Health Education Bureaux in the States and Union Territories of India has an audio-visual aids section which does and can produce simple teaching aids.

CHAPTER 11

Glossary

Section 11.1. HOW WORDS AND TECHNICAL TERMS ARE USED.

In verbal or written communication between people full understanding can only be reached if everyone concerned is aware of and agrees upon the meaning of the words or technical terms used in the communication. This is necessary because sometimes the same word conveys different meanings to different people or people use different words to convey the same meaning.

That being so in a handbook of this type it is necessary to define terms in order to avoid ambiguity and to avoid misunderstanding.

Words and technical terms have been included in the glossary only if they have not been explained or defined in the text and it is thought they could give rise to difficulties.

Section 11.2. WORDS AND TECHNICAL TERMS.

Acidosis: A reduction in the alkaline reserves of the circulating plasma.

ARM Artificial rupture of membranes: The rupture of amniotic membranes to begin or to allow labour to proceed.

Birth order (rank): The position of any child in the sequences of births to a mother.

Child mortality: The number of children (of any age group) dying from per 1,000 of the same age in a year.

Colostrum: The fluid rich in protein and antibodies secreted in the later part of pregnancy and before the coming in of true milk.

Community (Village) Health Worker: A worker appointed to each 1,000 people in a village. To be resident, to assist in health supervision and treatment, to act as a link between the community and the health team.

Eligible couples: The number of married couples within the childbearing years and therefore eligible for family planning assistance and advice.

Endemic: A condition, event or disease always present in a population.

Epidemic: A larger than usual number of conditions, events or diseases appearing in a population over a period of time.

Expander fluid: Fluid with a high osmotic pressure used in conditions of shock with vasoconstriction to retain transfused fluid in circulation.

Extra-Uterine pregnancy: Pregnancy outside the uterus, usually within a Fallopian tube.

Exchange transfusion: A transfusion in which equal volumes of blood (haemoglobin rich) are given to the patient and removed (haemoglobin poor) so that the patient's blood volume is not increased. This type of transfusion is used when patients have had a low haemoglobin for a long time with weakness of myocardium.

Feedback: Information relating to the effect of a class or other type of teaching upon the learners, which is 'fed back' to the teachers. It should be part of all assessment of teaching programmes.

'Felt' need: This is 'need' recognised by an individual or a group. It is a function of knowledge and education and a 'subjective' assessment.

Foetal distress: Signs during labour that the foetus is being deprived of oxygen.

Hagadorn Needle: A triangular sharp cutting needle semicircular in shape.

High Risk (At Risk): The possession of certain characteristics each of which increases the risk of an adverse outcome to a situation. See 'at risk' mothers or infants.

Incoming brides: The custom of a woman returning to her own village for the birth of her first child.

Infant mortality rate: The number of deaths of infants under one year of age per 1,000 live births in a unit of population.

Infarct: The area of tissue either necrotic or dead beyond a block in an end artery.

Interconceptional care: The MCH care given to women of childbearing age between pregnancies or before first pregnancy in the intensive area of a subcentre by the FHW.

Koplick's spots: 'Salt granule' spots seen on the buccal mucosa of the cheeks beside the molar teeth before the eruption of the rash of measles.

Kwashiorkor: A syndrome of malnutrition with misery, oedema and skin changes. Due to protein deficiency, usually combined with shortage of calories.

Low birth weight: A baby with a birth weight of 2500g (5½lb) or less.

Maternal mortality rate: The number of maternal deaths from causes associated with pregnancy per 1,000 live and stillborn children over a unit of time.

Mean; statistical average: The total (sum) of a series of observations divided by the number of observations.

$$\frac{\text{sum of observations}}{\text{number of observations}} = \text{mean}$$

Menarche: The onset of the first menstrual period.

Menopause: The cessation of menstrual periods signifying the end of ovulation.

'Milestones' of development: The attainment of a skill such as sitting or walking which comes about at a definite time and denotes a mark of progress.

Multipurpose worker: A worker (health) who is trained to perform a variety of duties in the delivery of care.

Neonatal mortality: Number of deaths of infants within 28 days of birth per 1,000 live births.

Perinatal mortality: The number of stillbirths and first week deaths per 1,000 total births.

Prevalence: The number of conditions, events or examples of a disease present in a population at any given time.

Promotional health: Personal health care has three aspects. Therapeutic, the treatment; Preventive, the prevention of further attacks; and Promotive, the production by advice or other means of better health for the patient.

Obstetrical manikin: A model baby used with a model of the bony pelvis in the teaching of midwifery.

Resource person: a person with special knowledge or experience who can act, during a seminar or other group teaching, as a reference person or one who can contribute to the topic under consideration.

Roughage: Indigestible or non-absorbable material — usually vegetable fibre — contained in food e.g. whole grain flours. Its bulk helps to keep bowel motions regular.

Special Programmes: National programmes to achieve particular objectives.

Standard Deviation: The square root of the arithmetic average of the squares of the differences between a series of observations and their mean.

Stillbirth: A baby more than 28 weeks gestation who does not after birth breathe or show any other sign of life.

Stillbirth rate: The number of stillbirths per 1,000 total births in a population.

Sullage: Liquid refuse or filth which should be carried away by drains.

CHAPTER 12**The Index — Where can I find it?****Section 12.1. INTRODUCTION.**

You will find the answers to most of your questions by reference to the detailed list of contents given at the beginning of the handbook. This is the first place to look. You will also quickly learn to look first in the most appropriate chapter, thus information about techniques is given in Chapter 6 and about the duties of health workers in Chapter 8, whereas equipment and records are in Chapter 7.

But you might wish to look up subjects which are not directly mentioned in the list of contents or you may wish to consult all the references to a particular subject. The index will then help you.

Note that subdivisions of entries are given sequentially and not alphabetically.

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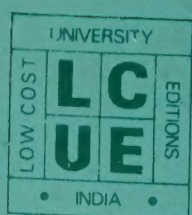
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This handbook is designed to help Medical Officers in their daily work and to assist in the training and education of undergraduate medical students and interns. With it Medical Officers will be able to improve the health of mothers and children in their Community Blocks by organizing their own work, that of the health team and by their contributions to Block Development.



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